

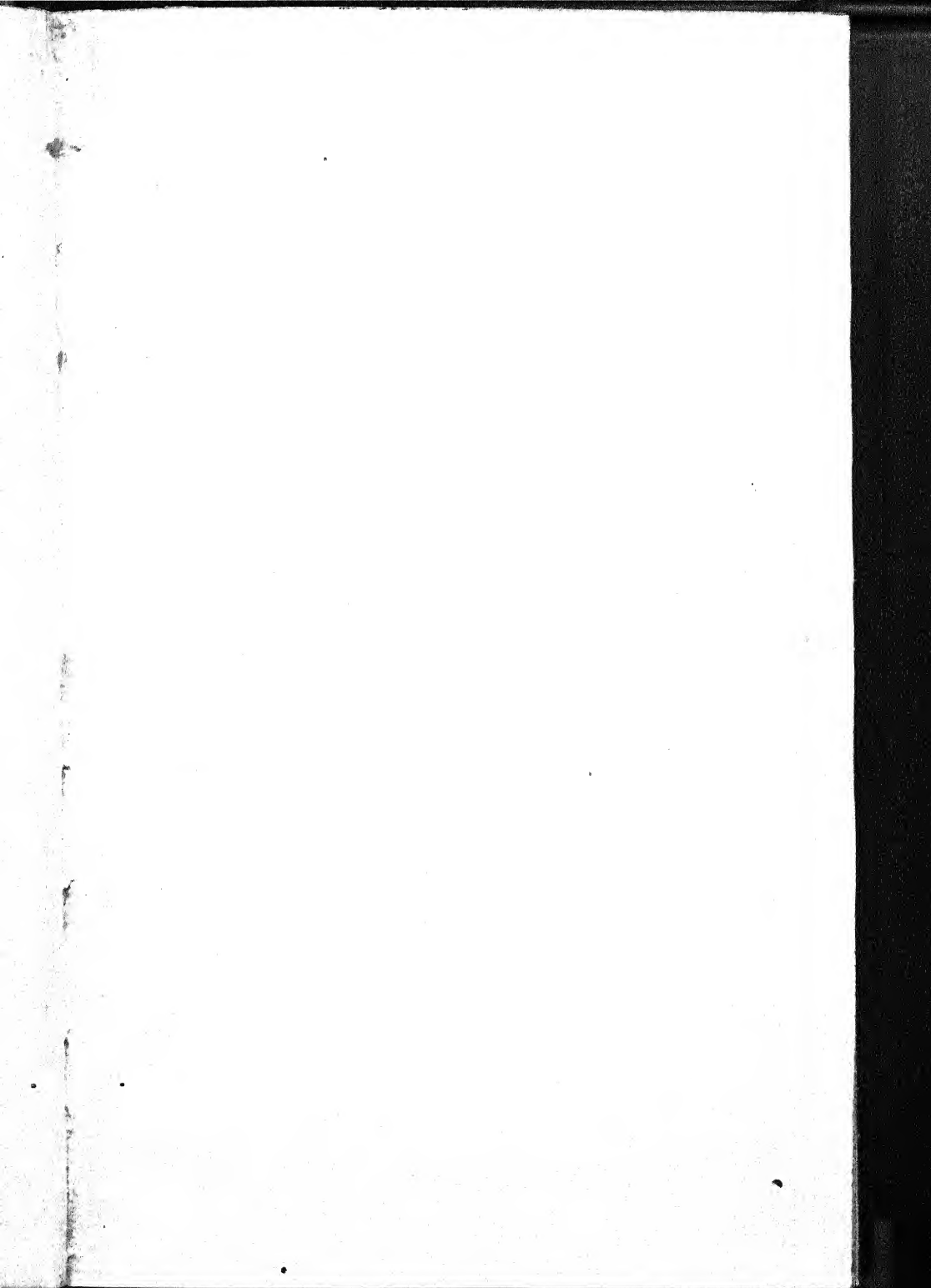
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HIS MAJESTY THE KING, IN FULL DRESS
UNIFORM AS AN ADMIRAL-OF-THE-FLEET

Frontispiece

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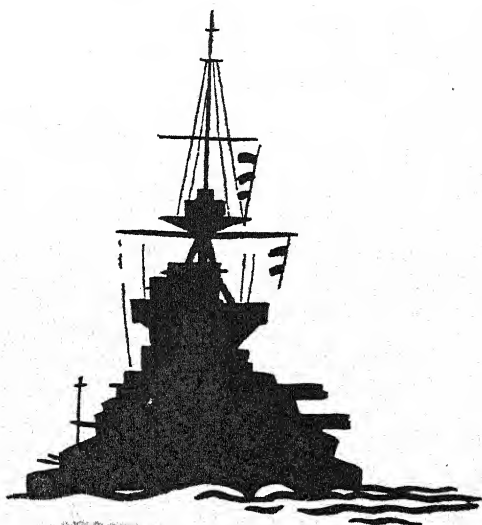
THE REAL NAVY

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by

Lieutenant-Commander the ²⁸⁸
Hon. J. M. KENWORTHY,

(Formerly Admiralty War Staff, London; Assistant Chief of Staff,
Gibraltar; Member of Parliament, Hull, 1919-1931)



With 47 Illustrations


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FOREWORD

FOR hundreds of years the British people have had a great affection for their Navy. No one makes fun about the Royal Navy ; though members of our Sister Service, the Army, sometimes used to say caustic things about us during the Great War. This was chiefly because they did not understand the principles of that titanic struggle and the real part the Fleet played in it.

There have always been plenty of jokes about the Army ; but there is an hereditary belief in the importance of the Navy as our first line of defence. And this continues to-day, despite the fact that man's conquest of the air has made the British Islands a strategic part of the mainland of Europe in case of war with a Continental Power.

As the dependence of Britain on overseas supplies has increased, so has greater reliance been put on the strength of the Fleet. For good or for ill, the economic system in Britain is top-heavy, industrialism having grown at the expense of agriculture. Our vast urban population is now dependent, as to three-fourths of its food supplies, on what can be brought across the seas. But these overseas supplies must be paid for by exports, visibly by goods, invisibly by services ; and of these latter the most important is the profit earned by the freight and passenger carrying of the Mercantile Marine.

So we, in these Islands, are trebly vulnerable at sea. We must import to live ; we must export to pay for our imports ; and we must look to a flourishing Mercantile Marine to make up half the balance. And all this trade and our merchant carrying shipping, scattered over the Seven Seas, has to be defended if Peace breaks down. True, there is the League of Nations ; but it is of recent growth, and war is one of our most ancient institutions. War, indeed, in one form or another, is as old as mankind. And there have been other attempts at Leagues of

Nations, such as the Holy Alliance, and the Holy Roman Empire of the late Middle Ages. Mankind generally, including the British people, apparently still refuses to think of the League as a sure defence against an aggressor, and of this refusal China is a sorry object-lesson.

When, finally, it is considered that the British Empire is far-flung and scattered over the face of the globe, with outlying Dominions, Colonies and Possessions, all with a real or sentimental value to the home country, which, again, it may be the duty of the Navy to protect, it will be seen how it is that the British people have come to depend on their Fleet and to regard it as a little boy amongst hostile strangers looks upon his big brother.

It is partly sentiment, therefore, partly self-interest, that has dictated the naval policy of Britain. And in the years after the Great War, despite the absence of any likely enemy or of any financial stringency, the British people, and all political parties, have insisted on money being found somehow to keep the Fleet in a state of efficiency; and, up till the present day, it is the strongest Fleet in the world.

Later in these pages I shall touch on two of the great British naval mutinies; the one violent, widespread and long continued at the end of the eighteenth century; the other peaceable, not directed against the officers, non-political and of short duration, which occurred in 1931 in our premier squadron, the Atlantic Fleet, at Invergordon. It is no use shirking the truth; and this book is intended to be a frank description of the British Fleet, its customs, its traditions, the officers and men who man it, their habits of thought and their methods of life. These officers and men are not angels. But they deserve the sympathetic understanding of their fellow citizens. And the time has come when the history of this latter episode should be related, if only that it may be viewed in its proper perspective, and its real significance, which was not so great as generally supposed by foreigners, understood.

I mention this latter episode in my foreword because of the tremendous impression it created in the minds of foreign observers, and, to an only lesser extent, among the British public. Abroad it had the effect of making the foreign observer believe

that all was over with Britain. Such was the prestige of the Fleet, and such was the recognition that Britain's might in the past, and in the present, to a large degree, even in the modern world, depends on an efficient and loyal Service afloat.

Here in England the effect of the Invergordon episode was to create tremendous uneasiness and even panic in the minds of the British people. This was undoubtedly reflected in the General Election held a few weeks later. The episode of Invergordon was hardly mentioned during the political campaign; but its psychological effect remained, and it had bitten deeply into the public conscience. Yet to understand that episode fully, and to give it its real value, it is necessary to know more about the conditions of life in the King's ships. And this picture I hope to present in the present volume.

It is a fact that the British public, as a whole, knows little about the Royal Navy. The ships spend their time, when in home waters, either at the three great naval ports of Plymouth, Chatham and Portsmouth, or at some rather out-of-the-way naval harbour such as Portland, Invergordon on the north-east coast of Scotland, Scapa Flow in the Orkney group off the north of Scotland, or in such beautiful but lonely estuaries as Lough Swilly and Bantry Bay in Ireland, and the interesting but sparsely inhabited Milford Haven in the south-west corner of Wales.

The busy mercantile ports see little of the Fleet; for there is no room for a squadron of modern battleships in crowded commercial waters. The larger ships cannot ascend far up the estuary of the Thames; and there are few other opportunities of seeing the Fleet at close quarters. An occasional review at Spithead gives opportunities to the public to see the ships themselves from the outside; while the recently inaugurated "Navy Weeks" permit of crowds of visitors to view the structure of the vessels themselves. Half the men are then on leave, and the others enrolled as special guides. Such visits of the public give opportunities for a brief technical inspection; but that is of little use to those who are themselves not technically informed. Valuable as are Navy Weeks, they cannot, in the very nature of things, provide a real insight into the life of the Fleet.

And then, a very considerable proportion of the Fleet is always

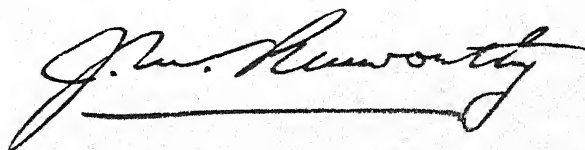
abroad. We keep a strong squadron "up the Straits"—in other words, in the Mediterranean; the expression coming from the Straits of Gibraltar, which have to be passed to enter that great inland sea. Cruiser squadrons, with their attendant small craft, are in the East Indies, China, on the Pacific Station, the West Indies and so on. So that for all these reasons less is known of the internal economy of the Royal Navy than of either His Majesty's Army or the Royal Air Force, the personnel of which do, after all, lead their lives in or near cities or towns, with their base camps and depots on dry land.

What do the public know, therefore, and what can they know, of the manner of life of those who man our men-of-war? What do they know of the work, pleasures, system of training, the opportunities of advancement and promotion in the half-dozen different Officer Corps, and the same number or more of different classes of ratings—that is to say, seamen, stokers, artificers, shipwrights, electricians, ships' stewards, writing grades, the signalmen, the wireless telegraphists and so on? Yet these are surely subjects of deep interest to nearly all citizens of the British Empire, whatever their age, sex, class or calling.

There are two popular views encouraged by the music-halls, cinemas and popular novels. One is that life in the Royal Navy is a glorified picnic, engaged in by rollicking Jack Tars, light-hearted midshipmen, and handsome, dashing lieutenants, who one and all fall in love with the Admiral's daughter and outwit foreign spies. The other conception is of a life of monotonous routine, continual hardship and exile, relieved only by debauchery and loose living. Both pictures are utterly wrong, while the wartime presentations in films and history books only tell a small part of the story. I have in these pages endeavoured to describe the Navy as it was, tracing its evolution and development. I have sought to give an account of its service in peace and in war, and the conditions of life in the post-war Navy under the conditions of world peace. And I have delved into the future, and ventured into the realms of prophecy in the chapters dealing with probable future developments. Here, of necessity, I am controversial; for these matters are the subject of active debate amongst naval experts and those politicians, civil servants, and

the international servants of the League of Nations who have endeavoured to foretell the future and deal with the present. If I have been of any service to my fellow countrymen in explaining something of a Service to which they have owed a great deal in the past, and for which I believe they have a real affection in the present, I shall be satisfied. I believe I shall be rendering a service to the Royal Navy, in which I spent seventeen years that were, on the whole, happy and encouraging, and a service to the officers and men afloat who were my comrades, by describing their great calling in proper perspective.

And, finally, I hope to have added a few grains of truth to the great harvest of historical information, some of it accurate and some of it grossly inaccurate, that has accumulated round the Navy in the Great War. For this also is important if future policy with regard to the Fleet, which concerns every citizen and every taxpayer in this country, is to be conducted on the right lines, for the greatest benefit of our own country and for our sister nations in the world.

A handwritten signature in cursive script, reading "J. M. Kenworthy". The signature is written in dark ink and is underlined with a single horizontal stroke.

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THE REAL NAVY

CHAPTER I

EARLY HISTORY OF THE ROYAL NAVY

Importance of Fleet to a great nation—Influence of sea power on history—The Mediterranean galleys—Rise of new power in Northern Europe—The coming of the Vikings—Early explorations—Discovery of America—Development of the ocean-going sailing ship—The eclipse of the galley—Feudal, Tudor, and Stuart Navies—The opening out of the great trade routes—Foundations of British Empire—Evolution of warships—Origin of the old nautical terms—Value of hereditary qualities in seamen—Meaning of sea sense—Development of modern man-of-war from ancient types—Life in the old Navy—Drunkenness and disease—Discipline—Prize law—Slave trade and the Royal Navy—Functions of the Fleet through the ages—The lessons of history.

THE Royal Navy is regarded as the first line of defence of the British Empire. This is not sentiment, but the lesson taught by historical experience. For the main function of a Fleet is to control communications. And safe communications are vital to any nation.

To understand the importance of a Fleet to a maritime Power, or, indeed, to any great nation, it is necessary to sketch briefly the development of sea communications.

Broadly speaking, no nation has become great without a flourishing Mercantile Marine and a Fleet to defend it. China and Russia are exceptions; the Chinese were great navigators, but never learnt the lessons of sea power; and earlier empires flourished before man had learnt the art of navigating the oceans. But in historical times the Phœnicians, Greeks, Romans, Venetians,

Genoese, Turks and Moors, all depended for much of their power on shipping. True, the Romans held their European Empire together by the construction and use of roads. But in the Mediterranean Sea, washing in those days the shores of the most important and cultured countries of the world, they made little headway until they had wrested sea power from the greatest of the Phœnician Colonies, Carthage. Nor without the arts of navigation could they have conquered these Islands and imposed that government and civilization on Britain which had such a profound effect on its people.

The Great Powers that fought for mastery in the Mediterranean, from the days of the ancient Greeks until the later Middle Ages, utilized galleys. These grew to large size and were propelled by slaves and prisoners at the oars. The art of utilizing sails was little known. It is true that the Phœnicians were able to coast round the shores of Spain and France to Cornwall and the Scilly Islands ; but the ocean-going sailing ship had not yet arrived. Galley warfare reached a high state of development, and much of later naval steam tactics were founded on the galley manœuvres. Ramming and boarding were the fighting methods adopted, and the Mediterranean Power that could place on the waters the greatest fleet of galleys controlled the narrow seas and the means of communication.

From the tenth century onwards a new Power arose in Northern Europe. The free tribes of the Baltic countries and what are now Norway, Sweden and Denmark, developed their own arts of navigation. They did not depend on slaves at the oars ; for the Vikings and other raiders were all free men, and their great open galleys, or longboats, with the one square sail, made tremendous voyages and were used for conquest and colonization right through the Dark Ages following the downfall of the Roman Empire. The open longboats of Northern Europe, manned by probably the finest seamen the world has ever produced, carried these adventurers to Iceland and Greenland, and, as a matter of historical fact, to Newfoundland and Canada, centuries before Columbus set out on his great voyage.

Nor were these Northmen mere raiders and pirates. Saxons and Angles founded a kingdom in Britain, conquering the

Romanized Celts. Their successors, the Danes, harried the Saxon kingdom, eventually conquering the country, and being finally beaten only by the greatest of the Saxon rulers, Alfred. He taught and applied the great lesson that sea power must be countered by sea power; and it was by building his own ships and tackling the raiders and navigators at sea that the realm was made secure. The Northmen or Vikings from Norway, first in their turn of the "barbarians" to learn the arts of navigation, became the greatest administrators and soldiers of their age, and were a power right through the tenth, eleventh and twelfth centuries. They raided and traded all round the coasts of Europe, venturing into the Mediterranean and even into the Black Sea and up the rivers of what is now Russia, emulating the great voyage of Jason in search of the Golden Fleece, as described in Greek history and mythology.

The Norman knights, their descendants and successors, conquered Sicily in the south, founding a dynasty and profoundly affecting the history of the mainland of Italy. They harried Paris, London and Dublin, finally conquering and settling in Normandy, and then using it as a base of operations for the invasion of England. The Northern or Viking longboats are believed to have penetrated far down the coast of Africa in search of gold and ivory.

These strains, therefore, of Saxon, Danish and Norman races are represented in the present-day British people; and we inherit from them the lore and practice of the sea that has stood us in good stead through the centuries. But the Northmen's longboats were not really suitable for world voyages; and the next great step forward in the development of sea communications was the discovery of the means of navigation in the ocean-going sailing ship.

Here the Spanish and Portuguese led the way, presently to be copied by the French, English and Dutch. When the Portuguese, in particular, were able to build sailing vessels capable of the longest voyages a new era of trade and commerce was opened out, profoundly affecting the whole of history—political, military and economic. One of the many important results that followed was that the New World was colonized, and its riches made

available for European traders and conquerors. The discovery of the Cape of Good Hope route to the East by the great Portuguese navigator, Vasco da Gama, led to trade and conquest in the Persian Gulf, India and China. During this period the sailing man-of-war was developed.

The sailing war vessel of the Tudor period outclassed the galley on which military power at sea had rested in the Mediterranean for two thousand years. For the development of the large ocean-going sailing ship for trade and fighting coincided with the discovery of gunpowder and the manufacture of cannon. The great galleys, propelled by their hundreds of slaves at the oars, could only carry artillery in the bow and the stern, owing to their construction. But the tall sailing ships were pierced for cannon on their broadsides, mounting these on two, three or even four decks, and so were able to overwhelm the galleys by superior gunfire. Furthermore, the sailing ships could tire out the rowers, and owing to their relatively smaller crews were capable of keeping the seas for much longer periods. Sea power was thus wrested from Genoa and Venice and passed to the Spanish, Portuguese and, later, to the Northern European nations. In a sentence, seaman-ship overwhelmed slave-power. And the seamanlike nations, able to exploit the trade of the whole world, became rich and powerful in their turn. The main history of the later Middle Ages, therefore, is the shifting of mercantile, financial, political and naval power from the Mediterranean to the Atlantic owing to the development of the oceanic trade routes. This development created a sailing Navy to control the routes. The British Navy eventually prevailed over all the others, and the British Islands became the seat of government for the greatest of the Empires. And its foundations were laid by sailing three-deckers which developed from the primitive longboats of our Northern ancestors.

It is possible to trace the evolution of the Royal Navy from the longboats of Alfred and the mediæval rowing and sailing ships of the feudal lords into the ocean-going sailing ships of the Elizabethan period. . And the dividing line between private ships and the King's ships was a narrow one. Every large merchant ship of those days was armed and carried artillery. and in time of

national danger was impressed into the Fleet. The King's ships were few in number in the beginning.

A national Fleet in the modern sense first came into existence in the time of Henry VIII, being founded on the ruins of the feudalism destroyed in the Wars of the Roses and reinforced, when required, from the ships of the trading merchants. But from then on there was a regular Fleet serving national policy until the present time. The Royal Navy, reinforced by armed merchant ships, fought and defeated the Dutch under the Stuart Kings and the Commonwealth and then engaged in a long struggle for mastery with France. A footing was first obtained in the Mediterranean at Tangier, afterwards abandoned; then at Gibraltar; later at Malta, presently to become of even greater importance with the cutting of the Suez Canal and the establishment of the short route to the East; and Malta is still a great naval station.

By the seventh century the Dutch had taken the lead over the Portuguese in the East, and we in our turn wrested the mastery from Holland and fought France at sea and on land for the lordship of India in the eighteenth century. But neither could have been rivals for an Empire in Asia without its Fleet. In the West our sea power, exercised through sailing ships, was used to fight Spain and break her trading monopoly in the Americas; and, later, to duel for mastery with France for the possession of the West Indies and North America.

The conquest of Canada against the rivalry of France was made possible by sea power; and when British naval power was temporarily eclipsed, the American Colonies were lost. Finally, Napoleon, after he had overrun Europe and established a military hegemony, was defeated by British sea power and the maritime blockade. His great dream of Empire in the Middle East and India was frustrated by British seamanship; and it is well within the mark to state that the British Empire, whether acquired through trade, conquest or colonization, was founded and flourished on the possession of merchant shipping and armed men-of-war to protect them.

Furthermore, the opening out of the great ocean trade routes of the world altered the whole economic situation of Europe especially; for not only were the great markets of America

available for European traders and conquerors. The discovery of the Cape of Good Hope route to the East by the great Portuguese navigator, Vasco da Gama, led to trade and conquest in the Persian Gulf, India and China. During this period the sailing man-of-war was developed.

The sailing war vessel of the Tudor period outclassed the galley on which military power at sea had rested in the Mediterranean for two thousand years. For the development of the large ocean-going sailing ship for trade and fighting coincided with the discovery of gunpowder and the manufacture of cannon. The great galleys, propelled by their hundreds of slaves at the oars, could only carry artillery in the bow and the stern, owing to their construction. But the tall sailing ships were pierced for cannon on their broadsides, mounting these on two, three or even four decks, and so were able to overwhelm the galleys by superior gunfire. Furthermore, the sailing ships could tire out the rowers, and owing to their relatively smaller crews were capable of keeping the seas for much longer periods. Sea power was thus wrested from Genoa and Venice and passed to the Spanish, Portuguese and, later, to the Northern European nations. In a sentence, seaman-ship overwhelmed slave-power. And the seamanlike nations, able to exploit the trade of the whole world, became rich and powerful in their turn. The main history of the later Middle Ages, therefore, is the shifting of mercantile, financial, political and naval power from the Mediterranean to the Atlantic owing to the development of the oceanic trade routes. This development created a sailing Navy to control the routes. The British Navy eventually prevailed over all the others, and the British Islands became the seat of government for the greatest of the Empires. And its foundations were laid by sailing three-deckers which developed from the primitive longboats of our Northern ancestors.

It is possible to trace the evolution of the Royal Navy from the longboats of Alfred and the mediæval rowing and sailing ships of the feudal lords into the ocean-going sailing ships of the Elizabethan period. . . And the dividing line between private ships and the King's ships was a narrow one. Every large merchant ship of those days was armed and carried artillery, and in time of

national danger was impressed into the Fleet. The King's ships were few in number in the beginning.

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exploited but it was cheaper to bring goods from Asia by sea and from Turkey and the Levant through the Mediterranean than by the overland routes.

I have endeavoured to show in the foregoing pages how profoundly the discovery of the art of navigation affected the life of many nations, including, particularly, the British nation, and how the use of the seas for trade and war altered and moulded the history of the world. Certainly in our own case the ability and the courage to make use of the maritime trade routes raised us from the position of a small island people to a great power in the world. And this sea tradition has bitten deeply into our national character. A whole vocabulary of nautical words, expressions and idioms has been grafted on to the English language, although they have now, in many cases, lost their original meaning. But in the Royal Navy particularly, the old traditions, the ancient manner of speech and expression, have been handed down from generation to generation. There is a team-spirit in every crew of a ship, and there must be for her safe navigation. This team-spirit has penetrated into the national consciousness.

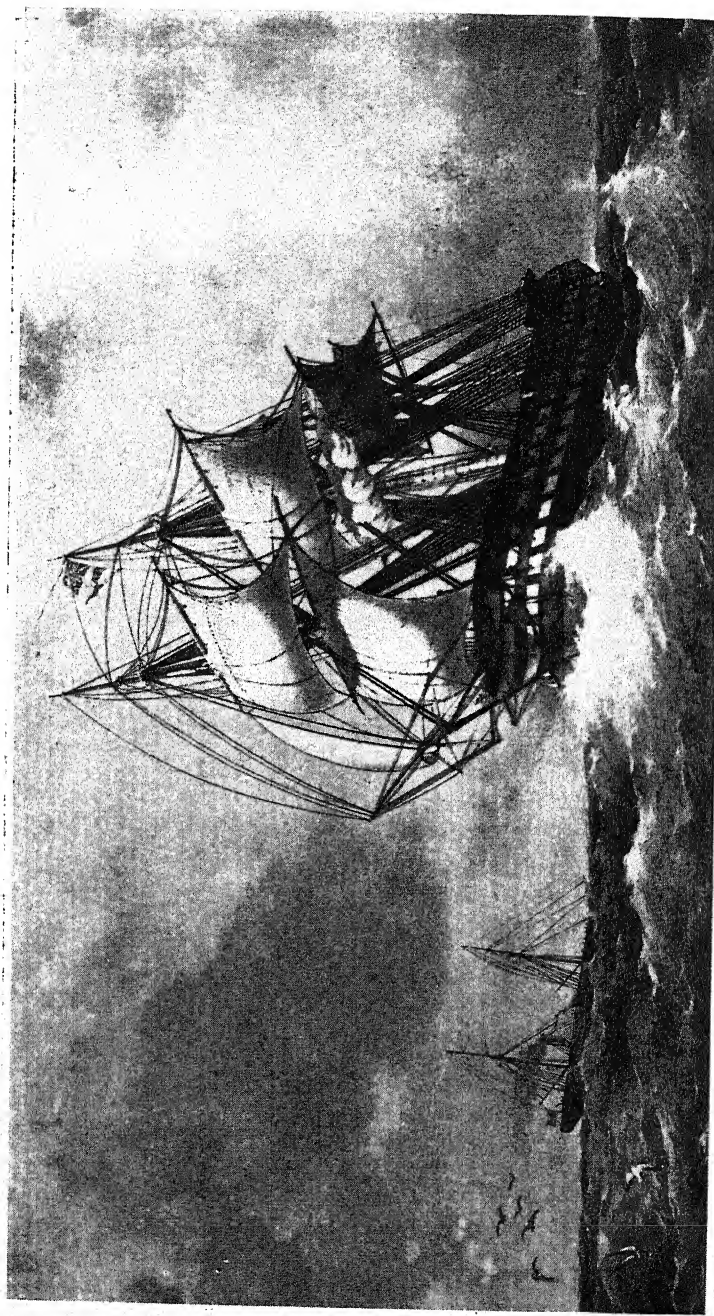
Let us see in what manner of ships our nautical ancestors sailed the sea, and how their characteristics have come down to us and are represented even in the most modern superdreadnought battleship. The galleys of the Mediterranean, the types used by the Greeks, Carthaginians and Romans, probably never sailed the waters surrounding the British Isles. They were essentially fair-weather craft, hugging the shores, avoiding long deep-sea voyages. It is doubtful if a Roman galley ever made her way through the Bay of Biscay.

The Roman invasion of Britain was accomplished with smaller craft, the type that was then generally used in Northern Europe. The longboats, or dragon ships (so called because their prows were decorated with the carved heads of griffins and other monsters) of the Vikings and other Northern raiders were of a different type altogether. The Mediterranean galleys were built especially for speed, in their later development having three and even four tiers of ~~powers~~ and three or four banks of oars one above the other ; and a great controversy has raged ever since as



[Turner & Drinkwater]

THE AUTHOR



H.M.S. "CANOPUS"

to how exactly three or four different layers of oarsmen were accommodated.*

The art of building war galleys is lost. But the most modern man-of-war carries a galley to-day. It is the name given to the kitchen, but the word has another application, and that is for a long, narrow, fast rowing boat used by an admiral. And here let me note in passing that in the Navy a boat means a wooden rowing boat hoisted on board a ship. To speak of any man-of-war as a "boat" is to display complete ignorance. True, there are torpedo-boats that have grown into warships of respectable size; but that is because the original models were actually steam pinnaces, which were steam boats that could be and were carried on board ship and which were fitted to launch light and primitive torpedoes. Gunboat has the same origin, the original war-vessels of this type being large open launches such as modern men-of-war carry to-day, which could mount guns and were propelled by oars and sails. But the long, low, rakish galley with its six rowers, used for ceremonial purposes by an admiral, descends straight to us from the Mediterranean war galley. The pinnace of a man-of-war, rowing or steam driven, descends from a stout little sailing man-of-war used as tender or attendant on a ship-of-the-line in Tudor and Elizabethan times.

The vessels for commerce raiding and war used by the Northerners, were more stoutly constructed than the galley type, for the first essential was seaworthiness. One or two masts, with simple square sails, were the ordinary means of propulsion; and, if the wind failed, the oars of the rowers. They were open, with some built-in or canvas shelter at the bow and the stern, and were originally steered by an oar thrust over the stern on the right side. This came to be known as the steerboard side, the side where the steersman stood. Hence the word starboard for the right side of the ship facing the bows, or the direction in which she normally travels; and this word has come right

*I have always had my doubts about the accepted view of the *triremes*. In our large rowing boats in the Service we speak of double-banking and treble-banking the oars when two or three rowers handle each oar. The *triremes* might have been propelled by long oars each manned by three slaves. Those who saw one of the greatest of the "silent" films, "Ben-Hur", will remember how Hollywood solved the problem by suspending the upper rowers in slung-chairs or stools. But I cannot imagine this arrangement being very seaworthy in rough weather.

down to us through the ages. A high bulwark for protection against arrows was erected on this side to guard the steersman or helmsman, both words persisting in the modern Navy ; and so the other, or left side, was used for lading and unlading cargo and stores and came to be known as the ladeboard side, afterwards larboard, and used in the Navy down to the middle of last century. The old song, "The Larboard Watch", is still heard occasionally, and a very beautiful ditty it is. But in a gale of wind the orders larboard or starboard sometimes lead to confusion, and so Admiralty orders were issued adopting the French word *port* for the left-hand side of the ship, presently copied by the Mercantile Marine, and now *port* and *starboard* are the terms used in British ships everywhere.

Later, rudders were fitted hung to the stern post, and the rudder was turned by a lever or helm. If it is desired for the ship to turn to *port* or to the left, the helm is put to *starboard* just as the oar was put to *starboard* in the earliest longboats ; the rudder or blade of the oar, as the case may be, turns to *port* and the resistance of the water to the blade or rudder turns the ship's head in the same direction.

The international lawyers and other landsmen who, at international conferences, press for what is known as the "direct" means of giving orders to the helmsman, which proposal has aroused much controversy amongst British seamen, are unaware of the origin of the orders given to the steersman. As ships increased in size a steering wheel was fitted for convenience ; but it then, as now, operated the helm. And even up till the most recent orders, reversing the ancient custom, the tiny hand-wheel on the bridge of a great liner or a huge battleship, operating by steam, electricity or hydraulic power the great steel rudder-helm down in the bowels of the ship, has only taken the place of the strong hand of the ancient steersman operating the handle of his steering oar. And the officer on the bridge giving orders to the helmsman at the wheel as to which way the *helm* is to be put, gives his orders in exactly the same way as has been done at sea by British seamen and their ancestors for many centuries.

Perhaps this short account may explain the resistance of

British seamen to the mental revolution required to order the helm to be put to port when they mean starboard.

But to return to the early sea-going vessels; the cobbles on the Yorkshire coast to-day, principally found at Whitby, Scarborough and Bridlington, are constructed on much the same model as the Northern longboats, and may be looked upon as their lineal descendants; just as the fishermen are, many of them, ethnologically descended from the Danish raiders. The longships of Alfred, the earliest King's ships of the realm, were therefore long, open rowing boats with a mast and one square sail but capable of very long voyages and of riding out heavy storms at sea. The larger ones carried a crew of about sixty; and it was this type that crossed the Atlantic, penetrated the Mediterranean and even the Black Sea, and ventured down the western coast of Africa. They had no compasses nor charts,* and no methods of fixing their position by observing the sun and the stars when out of sight of land; and they must have navigated a good deal by instinct, like the migratory birds. Indeed, a good deal of this instinct of the sea survives amongst fishermen and others who have spent all their lives in small boats and who follow the sea as an hereditary calling.

During the Great War I carried for some time a deep-sea fisherman on board the torpedo-boat-destroyer I commanded, because of his knowledge of foreign fishing vessels. There was a good deal of surreptitious mine-laying by disguised German fishing trawlers; and he could tell at a glance, and at a long distance, whether a steam trawler was Danish, Dutch, French, German or English, no matter what flag she flew. But I found him extraordinarily useful also in helping with the navigation. After dodging about and zigzagging at high speed in thick weather for days at a time, and being literally very much "at sea" as to our exact position, he could tell *by instinct* the direction and distance of our home port, and was almost invariably right within a mile or two. I mention this sense of the sea because it is certainly hereditary, and it shows that sailors cannot be manufactured wholesale as infantry soldiers are drilled into a regiment of an

*Compasses were invented by the Chinese and reached Europe through the Arab seamen, who copied them from the Chinese.

army, and also that seamanship is one of the greatest of the arts.

In the Middle Ages, up to Tudor times, the war vessels of the feudal nobles and of the Royal Household were only elaborations of the same type of vessel as the Norse longboats. They were decked in, and depended more on their sails than their oars. In the stern or steering end of the ship a superstructure of wood was erected, known as the after castle, from which the knights and soldiers fought their opponents. Forward in the bows was another strong erection known as the forward castle, or forecastle. The after castle has disappeared in naval nomenclature ; but the forecastle, or fo'c'sle, as it is pronounced, remains a part of every ship that floats the sea to-day whether it is the latest motor-liner or a "Washington" type cruiser, and even when the upper deck is absolutely flush or level decked. The word remains, though the castle has disappeared and it is the part of the ship where the anchors and cables are worked.

Between the two castles was the waist, where the rowers sat when oars were used. Nor are we far from those days, for when I first went to sea as a midshipman, in the third year of the present century, we still had men-of-war used for training purposes—sailing brigs that were fitted with long oars, or sweeps, for use in a calm. The word waist survives to-day. Round platforms were fitted at the top of the masts of the mediæval ships. They had sides either of wood or of canvas, behind which, in battle, were ensconced archers and crossbowmen to fire down upon the enemy. These were known as the tops, and their use for this purpose has survived down to our own times.

It was from the top of a French warship that a rifleman picked off Lord Nelson on board the *Victory* at the battle of Trafalgar. And in the early ironclads the tops were of steel and mounted light cannon, and were still called fighting tops when first I went to sea. They still exist, but for a different purpose altogether. The modern superdreadnought carries enclosed steel boxes or "tops" on her masts in which are range-finders and very elaborate electrical instruments for controlling the fire of the artillery.

Indeed, a wonderful invention known as director-firing has

been fitted. A telescopic gun-sight is fitted in the top, and by electrical instruments it is so arranged that as the telescope is moved with its crosswires on the target, every gun on board that man-of-war (in the case of a dreadnought of the latest type nine 16-inch weapons, weighing over 100 tons each) is moved in sympathy with the telescope. And on pressing the firing-key the whole battery is discharged at once, the guns aimed accurately at the target. So from the control-top of a modern super-dreadnought, an officer at the telescope can sight and lay and discharge her immensely powerful battery of heavy guns, capable of striking, twice a minute, with approximately ten tons of metal, a target fifteen miles away. But it is the same idea as the fighting top of, say, the Earl of Warwick's galleass in the fifteenth century with its archers.

Gradually the warships became larger and stouter, oars were done away with altogether in the bigger vessels, they mounted cannon on the broadside; and so were vessels evolved which proved superior to the Mediterranean galleys, and developed into the type used by the early Spanish Imperialists for their American trade.

The *Great Harry* of Henry VIII's reign was the first of this very large type of sea-going warship in the British Navy, and was as much a departure from previous models as the *Dreadnought*, introduced as a design by the late Admiral Lord Fisher, was a revolution in warships compared to the contemporary warships of that time. Indeed, the *Great Harry*, self-contained, capable of long voyages and with a crew of about seven hundred sailors and soldiers, was the predecessor of a long line of sailing war vessels that fought for supremacy on the seas during the next four centuries. It was this type of vessel, only modified as to her rig and sails, that fought at Trafalgar and survived in the Navy List well into the steam era of the fifth and sixth decades of the last century.

I mentioned the "tops" above; and this has led to the use of another naval term that persists to the present day. As the arrangement or rig of the sails and yards became more complicated, the tops on the masts were the points from which the more experienced seamen directed the crew in furling, setting

or spreading, and working the sails at sea. In the three-masted ships, which became the standard type, the seamen, therefore, who worked above the deck on the masts were divided into three groups, the foretop men, the maintop men, and the mizzen-top men.* There were the fo'c'sle men also, who worked on the fo'c'sle, and the quarter-deck men who worked aft or in the rear part of the vessel on the raised deck that extended from the high after castle or poop forward towards the main-waist. The term quarter-deck has survived; while the poop and after castle have disappeared; and the quarter-deck, in every man-of-war, is where the crew assemble for ceremonial purposes, for prayers to be read, and inspections to take place; and where, in the old days, the punishment of flogging was inflicted with due pomp.

To-day, in a modern man-of-war, the seamen are still divided into four groups or divisions, fo'c'sle men, foretop men, maintop men, and quarter-deck men. The mizzen-top men have disappeared. In certain of the modern dreadnoughts it is more convenient to have the seamen divided into three groups or divisions, under their own officers, and so they are called fo'c'sle men, top men and quarter-deck men to this day. These terms and many other words and expressions have their meanings derived from earlier customs of the sea coming down to us through five centuries of naval history.

It is interesting to note that the discovery of most of the known world, the greatest settlements and migrations and the opening of important markets for trade, nearly all took place in the golden age of sailing ships. The sailing Navy was the bulwark of Britain during the years when the greater part of our Empire was added to the possessions of the Crown, and it may well be that our glory will depart when our sea power is ended. Yet the earliest of the great navigators after the Renaissance were not Englishmen. But we were good imitators and improved on our teachers.

It was the rediscovery of the New World by Columbus, and the opening of the sea passage to Asia, by way of the Cape of Good Hope, by the Portuguese, that led to the development of great markets and a sea-borne trade of increasing importance.

*The masts of a ship, sailing or steam, are named fore, main, and mizzen, counting from the bows. If a fourth mast is fitted, it is called the jiggermast.

Later, the Dutch and English penetrated into the Southern Hemisphere, Australasia and the islands of the South Pacific. The exploitation of these great new markets necessitated larger merchant ships, capable of long voyages, and of larger and more numerous warships to defend them.

This great sailing-ship era of world-wide trade, colonization and conquest was made possible by a revolution in the art of seamanship, which came about gradually, with very far-reaching effects. This was the discovery of the method of making a ship sail *against* the wind. Up till the beginning of the sixteenth century sailing vessels had to wait for a favourable wind. They could only be blown along by it. That is, if the wind was blowing from the north they could sail south or south-west or south-east; but only with difficulty could proceed east or west. While to sail to the north against the wind, or even to the north-west or north-east, with a north wind, was beyond the capabilities of the earlier mariners. But by altering the rig so that the yards on which the sails were spread could be hauled round with the leading edge of the sails pointing towards the wind, and by altering the build of the hulls of the ships so that they lay deeper in the water and had a better grip of the liquid element in which they floated, it became possible for ships to sail against the wind.

They could not sail directly into the eyes of the wind; but by zigzagging against it, like a horse with a heavy load zigzagging up a hill, they could make progress. This is known as tacking, or beating up against the wind. Thus, with the wind blowing from the north, by sailing alternately north-west and north-east progress was made towards the north. A combination of forces of the wind blowing against the slanting sails, and the resistance of the water against the hull, resulted in the ship moving forward. When we read of a sailing ship beating round the Horn, often one of the most difficult and exacting feats of seamanship owing to the high seas and fierce winds in these latitudes, it means that she is tacking against an easterly wind on her passage from Australia to Europe, or from the west coast of South America to the East. The slewing round of the yards and the jamming of them against the rigging so as to be able to sail close to the wind, as sailors call it, is the origin of the word

windjammer, now, I am sorry to say, used derisively of what was a great feat of seamanship.

This discovery led to a gradual alteration in the rig of ships. The normal sailing ship of large size has three masts, with square sails, carried on yards slung across each mast. A certain height of mast is necessary, so that with heavy seas and high waves the upper or top sails will hold the wind while the lower sails are becalmed by the waves sheltering them from the wind. And then, gradually, a whole system of fore-and-aft sails known as jibs and staysails came into use in combination with the square sails. Finally the schooner was evolved, entirely fore-and-aft rigged. To-day in the Navy the men dressed as seamen in the traditional style, with their square collars falling over the shoulders, the open-breasted blouse and the flowing trousers, are spoken of as wearing square-rig uniform. The petty officers, writers, stewards and others wearing jacket and trousers with brass buttons, and presenting a neater, if less romantic, appearance, are spoken of as wearing the fore-and-aft rig.

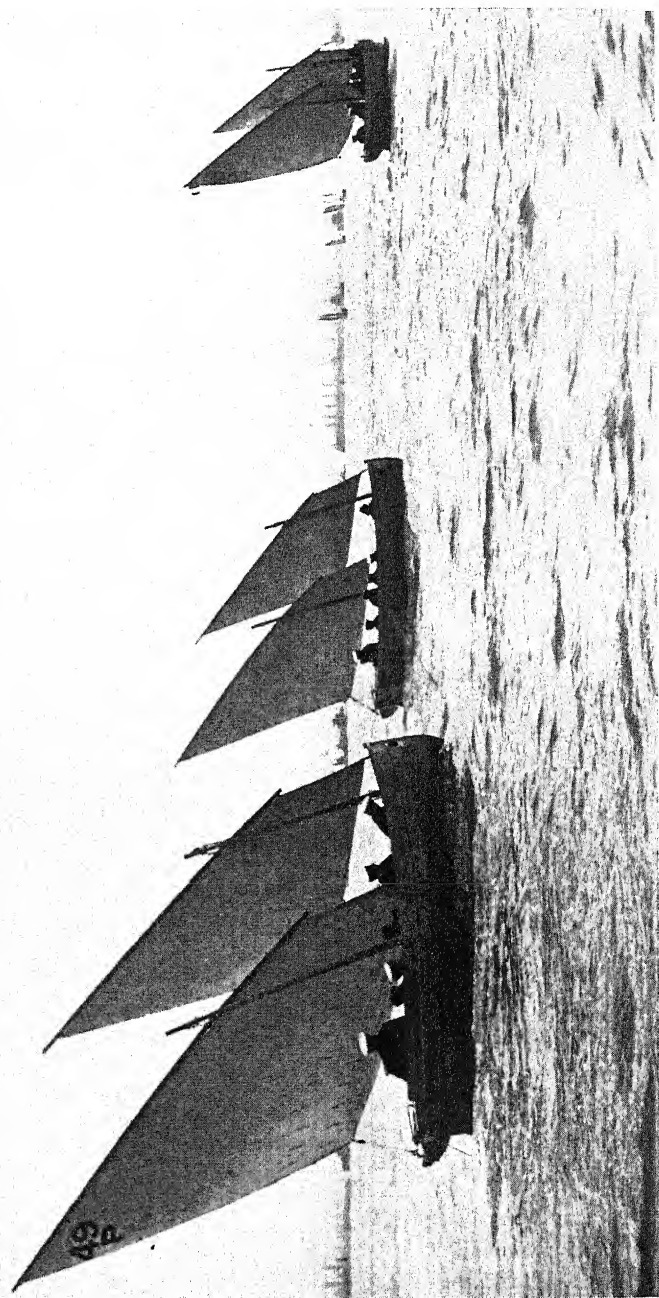
From the seventeenth century onwards, the three-masted ship with her square yards and square sails, with various refinements, became the standard type of large ocean-going vessel for all purposes, and for both merchant ships and warships. There was very little structural difference and not much distinction in the rig of the *Great Harry* of Henry VIII's reign, Drake's *Golden Hind*, Anson's *Centurion*, Nelson's *Victory*, and the sailing three-deckers which actually took part in the Crimean War in the 'fifties of last century. They were constructed of oak or teak, pine being used for the deck planking, everything on board being done by manual labour, and they carried their guns on the broadside on three or four decks up to even 140 pieces of artillery. They carried 800-1,000 men each, and could keep the seas continuously, provided they could obtain fresh water, which ran out in about six weeks' time unless very carefully conserved.

I have before me an accurate description of H.M.S. *Queen*, the flagship of the Mediterranean station in 1844, at a time when steam frigates were just making their appearance and when the transition from sail to steam had commenced. It was written by an officer who had served in her as a midshipman, and who was



[Abrahams, Devonport]

SWEDISH TRAINING SHIP "AF CHAPMAN" AND BRITISH SEAPLANE



[Cribb, Southsea

still holding a commission when I myself went to sea as a midshipman. She was a three-decker, mounting 116 guns, and with a crew of 970. When the admiral and his retinue were on board, over 1,000 souls were carried. She was 247 feet long over all. Her greatest breadth, or extreme beam, as sailors would call it, was 60 feet; and she drew 26 feet of water. The height of the mainmast from the top or truck to the water-line was 240 feet. The mainyard was 111 feet long, the foreyard 96 feet and the main topsail yard 78 feet. Her lower-deck ports were 6 feet 6 inches from the water. The lower-deck battery consisted of guns weighing 65 hundredweights each, smooth-bore, of 8-inch calibre.

A word of explanation here, for the modern way of reckoning the size of guns is also by the measurement of the calibre. This is the diameter of the bore, so that a 16-inch gun such as that carried in the battle cruiser *Hood*, or the battleships *Rodney* and *Nelson*, means that it has a 16-inch inside or interior diameter of bore. On the middle deck the *Queen* carried long 32-pounders, that is to say, guns firing a round shot 32 pounds in weight, and on the main deck 32-pounders also. These guns were mounted on wooden trucks with small iron wheels, and worked with handspikes used as levers, and rope-and-block tackles. Immense physical exertion was required to work a battery of these guns, the loading, laying and handling being done entirely by hand, especially if a rapid rate of fire was to be maintained. The seamen fought stripped to the waist, with the black silk handkerchief—that every seaman still wears round his neck in uniform—tied round his head to keep the sweat out of his eyes. It is generally believed that the black scarf is worn as a mark of mourning for the death of Admiral Nelson. This is erroneous. The scarfs were worn long before Nelson's time, and were black in order not to show the stains from the old-fashioned black powder.

The British Fleet blockading Brest in the Napoleonic wars was continuously at sea, except for purposes of drawing water, stores and victuals. The great majority of the seamen never received leave till the end of a commission. In those days the ordinary members of the crew would hardly set foot on shore for a whole commission of three, or even five, years. I have

heard of frigates on foreign service serving commissions of seven years.

I mention these facts because, later, I shall refer to the extraordinary changes that have taken place in the habits of the men of the Navy, marrying early, setting up homes on shore, obtaining frequent leave, and with an altogether different outlook on life.

Sanitation and medical science had made little progress at sea until the middle of the nineteenth century, and the mortality in the old Navy was terrific. Up till the middle of the eighteenth century, beer, the standard drink, was carried in barrels and usually went bad; salt beef and salt pork in casks, dried peas, and hard biscuit, harbouring weevils, was the staple diet.

Even in my own early days at sea in the beginning of this century tinned provisions were almost unknown; there were no refrigerators for keeping fresh meat, no arrangements for baking fresh bread. Three days out from harbour meant the sea-going provisions of alternate salt beef and suet dumplings, salt pork and peasoup.

The beer was replaced by rum in the middle of the eighteenth century. Rum used to be served neat until the advent of an early temperance reformer in the person of Admiral Vernon, Commander-in-Chief on the West Indies station. He was a great personality, and used to walk the quarter-deck of his flagship protected from the elements in a grog-coloured cloak; and the sailors called him "Old Grog". He insisted on the rum being diluted with three parts of water to one of spirit, which the sailors called "grog", and it has been so named ever since. It is still served out to the sailors and marines in this diluted form, the chief petty officers and other very exalted persons in the lower-deck hierarchy having the privilege of drawing their rum neat and undiluted.

Scurvy was the great enemy until the benefits of limejuice were discovered. In Admiral Anson's famous voyage round the world he started off with a fleet of six ships, but by the time he had reached the Straits of Magellan in South America, near the Horn, he had lost so many men from scurvy that he transferred the remaining crews to his flagship, the *Centurion*, and completed the

voyage in her alone. Even so, he was so short of men that he could not man all the guns on one side of the ship at the same time to fire a broadside when engaging the Spanish treasure ship whose capture brought so much wealth to the realm when he returned three years later to England.

Drunkenness was another curse, and was rife in the Navy amongst officers and men until the twentieth century. Better education, more facilities for recreation and sport, more leave, and a different outlook on life have brought about the change, and the Navy is now sober. Discipline was extraordinarily strict, and was only gradually humanized. Flogging—a terrible punishment—was freely resorted to. One captain, a hundred years ago, used regularly to flog the last man down from aloft from sail drill. A number were killed through risks run in trying not to be the last to reach the deck.

Certain admirals and captains, however, ruled more by their personality and by kindness than by terror. The great Nelson was an exponent of benevolent rule. I shall later, when dealing with the subject of discipline in general and some of the historic mutinies, refer to their cause and methods of suppression.

In the Stuart and Commonwealth Navy the punishments were even more cruel and drastic. Crucifying by driving knives through the hand to the mainmast was one of the recognized punishments; and another was keel-hauling. This consisted of passing a rope underneath the ship taken from a block, or pulley, from one yardarm to the other. The unfortunate delinquent was made fast to the rope by his shoulders and heels and hauled through the water and under the keel of the ship, arriving on the other side half drowned, scraped and bleeding from the barnacles on the bottom of the hull. But the naval punishments were no worse than those inflicted on malefactors on shore, and were a reflection of the rude customs of the period. The men were illiterate, many of them brutalized, though capable of great endurance; and they performed many fine feats of heroism. A large proportion of the crews were pressed; that is, forcibly recruited on shore by pressgangs. These gangs had the right to take any seafaring man by force for the King's service. The pressgangs, landing at night in seaports, were not too particular

whom they took ; and if they could not get sailors they would seize landmen. Many an unfortunate shopkeeper, artisan, or farm labourer was shipped off to sea in the dead of night and flogged into being a sailor.

A man-of-war also had the right to stop any merchant ship at sea and impress her crew, leaving the master only enough men to navigate her to the nearest port. It was this impressing of seamen that was one of the causes of the first war with the United States of America.

Others were recruited voluntarily by the hope of prize-money. I have seen the old bills that used to be put up in the seaports during the Napoleonic wars, calling for seamen to join the frigate of such-and-such a captain, who promised them plenty of prize-money ; and some of the captains with a good reputation for capturing prizes could almost pick and choose their crews. The old law was that all prizes—that is, captured merchant ships and their cargoes or warships—were sold. The Admiralty and the Prize Court lawyers took a percentage commission, and the remainder went to the captain and the crew of the captor in certain proportions.

Some of the frigates cruising for prizes in the French wars would make fortunes for the lucky captains and large sums of money for the seamen. In one famous case a frigate paid off at Portsmouth after a very successful commission at the end of the eighteenth century, and every bluejacket received £800 as his share of prize-money. Some of them had nothing left of the money in a week's time. One band of roystering spirits bought up all the gold watches in Portsmouth and fried them in butter ! The prize-money laws still survive, though there was a different method of distribution in the Great War. All the shipping and cargo captured from the enemy was taken to the Prize Courts in the same way and the value credited to the Navy as a whole. The cruising ships only got the same proportion as the crews of the battle fleets and patrol vessels, without whose protection they could have made no prizes at all. And every officer and every man serving afloat during the Great War received his share.

Probably the greatest services of the old Navy, apart from its

war record, were the suppression of the slave traffic, the stamping out of piracy, and the charting of the seas. Under international law, slavery can be suppressed at sea ; and the Royal Navy played a great part in stamping out the traffic of unhappy negroes from West Africa to the Americas, and from the east coast of Africa to Asia. These operations against slavers at sea continue, I am glad to say, till the present day, though it is regrettable that there is still need for them ; and, as I write these words, there are naval patrol vessels sweltering in the Red Sea on the look-out for Arab dhows with their miserable cargoes of African Negroes *en route* for the markets and sheiks of Arabia. This is probably the last vestige of a regular slave trade that grew to great proportions and enriched many English families, notably in the city and port of Bristol.

A long campaign was waged for three hundred years against pirates and buccaneers, the worst areas being the West Indies, the North African, or Barbary coast, as it was called, and the China Seas. Piracy has disappeared in all these once dangerous waters with the exception of the China coast, where occasional operations have to be undertaken against the pirates by naval vessels even at the present time.

With regard to the mapping of the seas, I must here pay a tribute to the Royal Navy for the great public services, through two centuries and more, of the chart-makers and surveyors. It is not generally known that the greater part of the seas have been accurately charted by His Majesty's ships serving under the direction of the Hydrographic Department of the Admiralty. Mostly sloops and gunboats, used for this service and manned by naval officers and ratings, the surveyors have penetrated into all parts of the world, sounding rocks and shoals, accurately plotting in the coasts, and doing work of the greatest value to humanity. Accurate charts are a necessity for navigation. Without such charts wrecks would be more frequent and commerce more hazardous. Two hundred years of painstaking work has produced British charts—the model for all the world—of almost every known part of the coasts and shores of our hemisphere. For three-quarters of the coasts of the world and the neighbouring seas the only accurate charts in existence are those made by the

surveying branch of the Royal Navy. This service goes on to the present day, and the charts are made available for the mariners of all nations and sold in every seaport in the world.

British Admiralty charts are found in ships, both mercantile and war vessels, under the flags of all nations. If the Navy is a silent service, this is a supersilent service, and no praise is too high for these surveying officers and ratings and the devoted and accurate work of scientific and public service that they have performed.

What has been the guiding policy of the Admiralty and the Fleet during these centuries of rich history?

It would require a separate volume to trace the strategy of the Royal Navy during the last three or four centuries in any detail; but it is possible to sketch in broad outlines the policy that has actuated it. A change in strategy came about with the opening of the great trade routes. There has been a series of wars fought since the improvements in navigation and the opening out of the distant market of the world that began, roughly speaking, in the Elizabethan era. These wars differed from the naval engagements of feudal times. Some were ostensibly religious wars, like the first great contests with Spain, the best-known episode of which was the destruction of the Spanish Armada. Others have been political, like the war of the Spanish Succession to preserve the balance of power in Europe; and the Crimean War to prevent a Russian footing being obtained in the Mediterranean, in which we were allied with the French. But the principal naval campaigns have been fought for one object only, sea supremacy, to obtain and hold which was the settled policy of the British governing class for three centuries. And these campaigns have always been directed against the sea power which threatened that supremacy. The ostensible cause of the first Dutch war was the refusal of the Dutch admirals in the Channel and North Sea to lower their topsails as a salute to the British warships. This was considered an insult to the sovereignty of the seas, claimed by the English. The series of wars which followed included the hardest naval battles ever fought—fought, indeed, as only English and Dutch have ever been able to fight them at sea. The real object of the Dutch wars was to secure command of the sea, and,

with it, sea-borne commerce and especially the lucrative carrying trade. As in the case of the wars against Spain, the final victory rested with the English Navy; and sea supremacy was secured against both Spanish and Dutch.

The long-drawn-out naval campaigns against France, lasting more than a hundred years, had the same object of securing sea predominance; and they brought to us, as a result, the Empire of India, Canada, and other valuable possessions. There was no deliberate policy of Empire building, but an instinctive desire to hold the command of the seas.

The war with the United States was fought against the doctrine of the freedom of the seas, the infant American nation of those days objecting, as they do now, to the right of blockade being exercised on the high seas by the predominant naval power. This, then, was a war to preserve the right to exercise the power that goes, normally, with command of the seas.

The Great War of 1914-1918, so far as Britain was primarily concerned, whatever its ostensible cause, was, at bottom, a struggle between the British and Germans for sea supremacy.

In turn, therefore, the Spanish, Dutch, French and Germans challenged British sea power; and each in its turn was overborne. Except the last, all were fought with sailing ships; and during the sailing-ship era the Royal Navy, with occasional setbacks, remained supreme throughout three centuries.

In the European war of 1914-1918 the campaign was only indirectly affected by actual naval battles. The long-drawn-out blockade was one of the chief factors in bringing about the downfall of the Central Powers; but much of the victory was won by fighting on land. Indeed, it would be inaccurate to say that the Navy played the same relative part that it did in previous wars. Yet a German victory at sea would have meant the downfall of the Allies' cause. The Royal Navy was far stronger, relatively, than the German Fleet; and when the Navies of Britain and her Allies were added together, the sea predominance was overwhelming. The German submarine campaign nearly led to the loss of the war and the defeat of the Allies' cause; indeed, but for the entry of America the Great War would probably have ended in stalemate. The part played by the Navy was important,

in that it prevented defeat. But it did not bring victory in the old sense. The German military power on land had first to be broken.

It is disquieting to think that in a mechanical age British naval supremacy was less effective or less complete than in the sailing-ship era. This fact must give all serious naval students to think.

What were the secrets of success of the British arms at sea in the sailing-ship days? Our great asset was superior seamanship. French naval architecture, for example, was superior to ours; and we had no great predominance of naval strength in any case. But the method of fighting that served us best and won the great naval victories of those days consisted in coming to as close quarters as possible with the enemy. The British tactic was fighting yardarm to yardarm when possible, boarding and fighting it out hand to hand on the decks. The superiority of our seamen then made victory usual.

The cannon changed little from Elizabethan days to the middle of the nineteenth century; they were smooth-bore, muzzle-loading guns firing a round shot of iron and ineffective beyond a comparatively short range. But they were very effective at close quarters, and it was in close-quarter fighting that our great battles were won.

I shall trace in the following pages the development of the mechanical navies and the effect of the invention of the steam and Diesel engines, of modern artillery, the torpedo and the submarine. But the broad lesson would appear to be that when we depended on the human factor, the skill of the seaman and the tenacity of our fighting men, combining these with the fine strategy of great exponents of the art of maritime war, we were more successful than when we had to rely on the skill of the ordnance maker, the engineer and the marine architect.

Sea sense was an inherited quality from the great mariners whose blood runs in our veins. The Northern raiders, Alfred the Great's sea captains, the Norman navigators, the great Elizabethans—Drake, Frobisher, Hawkins—and then a long line of mighty seamen and leaders of men—Blake, Anson, Howe, Jervis, Nelson, Hood, Cochrane, Scott—these giants of the ocean

handed down a wonderful tradition. They were seamen first, last, and all the time.

How far has the technician usurped the place of the seaman in the modern navy? Have we lost the seafaring touch that stood us in such good stead through the centuries? It is too early yet to give a complete answer, though the historian of the future will find this an interesting study.

And to-day, in the fourth decade of the twentieth century, we have, without firing a shot, surrendered by international treaty that sea supremacy which we had retained for three hundred years. This revolution in British national policy may be good for peace and for the progress of the human race; but it is bound to have a great effect on the position and fortunes of the Royal Navy; and it must be properly appreciated before the final judgment is reached by the politicians and electorate of our country.

CHAPTER II

THE CHANGE FROM SAILS TO STEAM AND AFTER

The marine steam-engine—Its political effects—Why sail lingered—Crimean campaign the death knell of the sailing man-of-war—The last frigate—The first ironclads : *Monitor* and *Merrimac*—Comparison of early ironclads with modern superdreadnoughts—The torpedo—Its effect on naval design—The change from coal to oil—Water tube boilers and turbines—The Diesel engine.

In the previous chapter I described the great changes in the design and character of sea-going vessels, and the effect of these changes on the naval history of Britain.

Indeed, one might go further and show that nothing has more affected the history of the civilization of the world than the development of means of communication by sea. Just as the invention of the galley led to the development of commerce, wealth, and, therefore, political power in the Mediterranean, so the ocean-going sailing ship changed the centres of power first to Spain and Portugal through their trade with South and Central America, and then to Northern Europe and North America.

The next great change was the invention of the modern steam-engine. The early steam-driven vessels depended on coal for their motive power ; which gave an added advantage to the British Isles, with their great deposits of good steam coal. The coming of the marine steam-engine quickened the tempo and increased the volume of world trade.

The British Admiralty was slow to appreciate the importance of the steam-engine, and, indeed, fought its introduction for war vessels as long as possible. The old-fashioned seamen had a healthy fear of the new-fangled methods of propelling vessels, for they knew well how much we had owed in the past to

seamanlike skill; and feared, not without reason, that Britain's sea supremacy would be endangered by the marine steam-engine.

This was not mere prejudice.

Just as the invention of gunpowder democratized warfare and sounded the knell of the feudal army, depending on the might of the armoured horsemen of chivalry, so it was feared that the steamship, whether for trade or war, would democratize marine power and weaken the maritime nations.

Nevertheless, the clock of progress could not be put back or even stopped in its movements; and the steamship, for commerce and war, had to come.

The naval authorities of the latter part of the last century were far-sighted enough to see that coaling stations would be of great importance. Some of our Crown Colonies of to-day were held and developed for this very purpose. The old sailing fleets could take in water wherever there was a running stream near to the sea, and could obtain provisions wherever food was to be had. Anson, in his famous voyage round the world, referred to in the last chapter, coerced the Chinese mandarins of Canton, where he called, into baking him biscuits and salting down meat for the resumption of his journey. The coal was a different matter altogether, and coaling stations, fortified and defended and stocked with the precious fuel, had to be established in all likely areas of operation.

The change from sail to steam was gradual. The early marine engines were unreliable and skilled engineers few. For mercantile purposes sail was cheap, and the steam-engine appeared as a factor in navigation at a period when the sailing ship had reached its highest point of development. Thus the China tea-clippers of the Mercantile Marine and the fast-sailing frigates of the Navy of the same period were the last word in sailing ships in the middle of last century. Even when engines and boilers were installed they were looked upon, in the first place, as mere auxiliaries to the sails; and later on, when they became high-powered and more reliable, the masts, sails and yards were retained in case of a breakdown of the engines or to economize in fuel. So gradual, indeed, has the change been that there are still square-rigged, ocean-going sailing ships carrying cargoes

on the high seas, few in number, it is true but reinforced by a multitude of smaller sailing vessels coasting round the shores of all the Continents. Indeed, sail as a means of propulsion at sea for mercantile purposes is likely to hold its own for many years to come. In the Navy, sailing ships survived right up to the outbreak of the Great War, principally for use in surveying the bed of the ocean, referred to in the last chapter. When I first went to sea, and for some years afterwards, until the reforming zeal of Admiral Lord Fisher struck them off the Navy List, there existed a dozen sailing brigs, small, wooden, two-masted, square-rigged sailing men-of-war, replicas of the small war vessels that had performed great services throughout the naval campaigns of the two previous centuries. They mounted smooth-bore guns exactly like those used at Trafalgar and other naval battles of history, and carried boarding pikes and cutlasses and the other small arms of their period. They were not only an interesting survival, but performed a most useful function in training boys and youths as seamen.

With a senior lieutenant in command, a boatswain, three or four midshipmen and some petty officers, they were manned otherwise by young lads just out of the stationary hulk training ship, and cruised about the English Channel under sail, turning these youths into fine seamen in a very few weeks. There were also a number of sailing corvettes and sloops—with engines, it is true, but with considerable sailing power as well.

I myself have seen the surveying ship *Espègle* sail into the narrow and crowded Grand Harbour at Malta without the use of her engines at all, all her canvas spread, and then pick up her mooring buoy in the real old style. She was one of the surveying vessels referred to in the last chapter.

But the brigs were unique in being sailing men-of-war without any engine power at all ; and they actually had long oars, known as sweeps, for helping them on in a calm, and were in the direct line of descent from the Norse longboats and the feudal galleasses.

I have mentioned the resistance to the introduction of the steam vessel for use in the Navy ; and it was certainly intense. It was looked upon at first as a passing fad. There is extant in the

Admiralty office a minute passed by the Board to the effect that steam-engines would be no use for the Navy because it would be impossible to carry enough coal for long voyages or to obtain coal supplies abroad. Nevertheless, by the time of the Crimean War the Navy was already composite; the old sailing ships-of-the-line being reinforced by steam war vessels, and steam tugs being available which actually towed the old sailing battleships into action against the Sevastopol forts; which must have been a terrible humiliation to their old-fashioned commanders.

It was, however, this Crimean campaign that sounded the death knell of the old sailing battle fleet; and though, for service on distant stations, frigates were retained till many years later, for real war purposes the steam vessel had come into its own by the middle of last century.

And this revolution in fleets was still further emphasized by the lesson of the American Civil War. The last frigate only disappeared from the Navy List in 1861. This was the *Calypso*, who served her last commission on the Pacific station.

The next stage in development was the introduction of the rifled cannon capable of accurate fire, and the invention of percussion shells. The breech-loading cannon arrived later, and the earlier rifled ordnance was muzzle-loading. Incidentally, the breech-loading idea was a very old one, and was actually in use in the smaller artillery of Tudor times.

This more powerful and accurate modern artillery required an answer; and it came with the introduction of armour plate. The first development was to cut down the old wooden sailing three-deckers, fasten iron armour to their sides, and fit them with engines. Then, when it became necessary to protect the crews of the guns, the turret, a revolving tower of steel carrying one, two, or three cannon, was invented.

It had its first great success in the American Civil War, when the first turret vessel, the *Monitor*, fought her historic action with the *Merrimac*, an ironclad converted from a sailing vessel and of the type mentioned above.

The *Merrimac* was a wooden frigate cut down, fitted with a steam-engine and covered over with armour improvised out of rolled-out railway track rails. She was fitted out in the port of

Norfolk by the Southerners, who were blockaded by the Federal Navy. The Federal squadron consisted only of wooden steamships and sailing men-of-war. The *Merrimac* put out to sea and drove them off with loss. Their round shot fell off her sides like "pease off a roof". It was obvious that the old-fashioned naval ships of the Federal forces, with their smooth-bore muzzle-loading cannon, had no chance against her. The siege of Norfolk would have been raised, with important results on the whole course of the Civil War, and therefore the history of the United States, but for the opportune arrival of the little *Monitor*. She proved herself more than a match for the *Merrimac*, and the tables were turned again. The *Monitor* was the first ironclad with a turret, built specially for the purpose; and was the invention of a very brilliant young Swedish engineer named Ericsson. He had offered his invention, without success, to the British Admiralty, and also, it is said, to the French Ministry of Marine.

The Northerners, under the stress of the Civil War, were, however, only too anxious to experiment with this new invention; and this first action between ironclads opened the eyes of all naval officers, including those of the Royal Navy.

Ericsson's inventions had a profound effect on naval architecture. For he was also the pioneer of the screw-propeller. Prior to this invention the means of propulsion was with paddle-wheels, either on the sides or stern of the vessel. These, naturally, were vulnerable to gunfire. The screw-propeller operating under water was far less liable to damage.

There are a few stern-wheel river gunboats still on the Navy List and used as patrol boats for police purposes, especially on the Chinese rivers. For a paddle needs less depth of water than a screw-propeller, and therefore has its uses amongst the shifting shoals and shallows of rivers.

The first ironclad frigate, specially built and not converted from an existing wooden vessel of the old type, was laid down for France in 1858. The first specially built armour-plated war vessel for the Royal Navy, the *Warrior*, was launched in 1861. From thence onward the great surface warship, first with its iron armour, and then with its steel plates, grew in size and power until it reached its culminating point in the great

battle-cruiser *Hood* of the Royal Navy, the largest warship in the world.

It is interesting to compare her with the first turret ship built for our Navy, the ill-fated *Captain*. The *Captain* had a displacement of 6,000 tons. That meant her actual weight, or, in other words, the weight of the water that she displaced when floating in the sea. This is the usual method of measuring the size of ships. The *Hood* was laid down in 1916 and completed in 1920. She has a displacement of 42,000 tons. The *Captain* had a speed of 15 knots and was considered a flier in her day; the *Hood* has a speed of 31 knots.

But for the limitations laid down in the Naval Treaty of Washington in 1921, still larger warships would have been built for the British, American and Japanese navies. Indeed, the British Admiralty had actually designed a superdreadnought of 50,000 tons. The *Hood* is almost certainly the culminating point, however; for it is extremely likely that some limitation on size by international agreement will be adhered to in the future, partly for financial reasons because of the high cost of constructing these enormous warships; partly because of the inconvenience of docking them; and partly because the building of such very large ships means the placing of too many eggs in one basket, for the power of the torpedo, and, still more, of the aeroplane, is increasing.

But to return to the evolution of the modern steam navy. The *Captain*, a tremendous advance on all her predecessors, was the invention of a great British naval seaman, Captain Cowper Coles. He nearly wrecked his professional career by pressing his ideas on the Admiralty of the day, the Sea Lords being suspicious of changes in the design of warships. When, finally, as the result of the lessons of the *Monitor-Merrimac* engagement referred to above, it was decided to build the *Captain*, the old ideas prevailed to such an extent that the Admirals of the day insisted on fitting her with huge masts and yards, taking a tremendous spread of canvas, in case the engines broke down at sea. But the effect of this tremendous top-hamper was to make the ship unbalanced; and on her first voyage she was struck by a sudden squall off Cape Finisterre on September 6,

1870, and capsized. Five hundred gallant officers and men were drowned, including the unfortunate Captain Coles himself.

After the loss of the *Captain*, there was a check to naval development, and the Royal Navy was allowed to fall very much behindhand. France was weakened by the Franco-Prussian war, there was no other fleet of any account, and economies were practised at the expense of shipbuilding. By the 'eighties of last century, however, the French Navy had been greatly strengthened, Russia was building a fleet, and much nervousness began to be felt as to the British naval position. There arose a considerable scare about national safety, and it was pointed out that, on paper at least, our Fleet was at that time markedly inferior to that of France, the principal naval power on the Continent.

The agitation led to the passing of the Naval Defence Act through Parliament in 1885, providing for the steady construction of war vessels of all types on a settled plan over a term of years. The result was to place once more the *matériel* of the Navy ahead of that of every other fleet, and Britain remained the strongest naval power in the world from then onwards.

It was not until 1929 that the principle was accepted of another power, the United States of America, possessing a fleet equal in *matériel* to that of the Royal Navy.

But now let us consider the further evolution of the fighting ship. In the 'eighties of last century a new weapon appeared at sea in the form of the mobile torpedo. This is a long, cigar-shaped weapon fitted to run under water and carrying in its head an explosive charge which blows up on striking any obstruction. I give a non-technical description of a modern torpedo in the next chapter.

The torpedo has had almost as profound an effect on naval tactics and naval architecture as the invention of gunpowder, for it enables a blow to be struck at the most vulnerable part of a ship, her under-water hull. It can be launched in various ways. Quite small vessels can carry torpedoes, and special fast launches, known as torpedo-boats, were designed for this purpose. The torpedo can also be launched from a tube carried under water, built into the hull of large warships. All war vessels from the 'nineties of last century onwards have carried torpedo-tubes for

this purpose. Torpedoes can also be launched from the air, from aeroplanes or seaplanes swooping down near the surface of the waves, and a very accurate and deadly method of attack it is. Above all, the torpedo can be used as a weapon by under-water boats or submarines. The effect on naval tactics of the invention of the torpedo has been very important, for the range and power of the torpedo has been increased and its immediate effect has been to discourage close-action fighting. The accepted method of naval action by the British Fleet right through the sailing-ship era, and until the invention of the torpedo, was to get to close quarters. But the torpedo discouraged these tactics. Consequently it was necessary to develop long-range tactics, and, therefore, heavy artillery and consequently larger warships. For, as the artillery increased in power, so heavier armour had to be carried and the tonnage and cost of the war vessels increased. Added to this, as a result of the lessons of the last great war, very elaborate under-water protection is provided against the torpedoes themselves. These factors have been the main cause of the increase in the size of war vessels and the cost of fleets.

Furthermore, the torpedo led to special types of war vessels being designed to use it; and they developed far beyond the little torpedo-boats which were the first models of special torpedo vessels. These little ships were originally designed for harbour defence. They then became larger and more seaworthy, and the French flotillas of torpedo-boats in the Channel at the end of last century were regarded as a serious menace. Steel nets suspended from booms from the sides of the warships were fitted, and, in answer, special steel-cutters were fitted in their turn to the noses of the torpedoes, capable of penetrating the steel nets.

Larger, faster and more strongly armed vessels were designed, known as torpedo-boat-destroyers, the object of which was to run down and destroy the opposing torpedo-boats.

And, finally, the submersible torpedo-boat, or submarine, was invented, which caused such terrible loss of life and property in the last great war, and nearly led to the defeat of the Allied cause.

The torpedo has had another effect; it can be carried and used

by small and comparatively cheap vessels, torpedo-boats, submarines, etc. This has weakened the relative position, strategically, of the great naval Powers. The large and costly ship-of-the-line, the battleship, with her highly trained crew, was, for centuries, the queen of the seas. But now a little torpedo vessel can disable or sink her. The result has been similar to the invention of gunpowder in land fighting. The musketeer, perhaps a poor fellow taken from the plough-tail and trained in a few weeks, could shoot down the armoured knight. This democratized land warfare.

So the torpedo has democratized sea warfare. It has, among other results, made the close and certain blockade more difficult. That is why the smaller nations, or some of them, oppose the abolition of the submarine at Disarmament Conferences.

I shall, in a subsequent chapter, deal in more detail with modern types of war vessels ; but it is necessary now, in order to understand the development of the modern navy, to examine briefly the development of the marine engines themselves.

The standard boiler for raising steam in warships was, until the end of last century, what is known as the Scotch, or tank, boiler. With various refinements and improvements it is much the same boiler as is still used in thousands of merchant ships, and simply consisted of a cylinder of steel, or other suitable metal, with a furnace below it. It needs some hours to raise steam, however, and, for high engine-power, large boilers are needed, which, coming well above the water-line, are vulnerable to gunfire.

The next improvement was the water-tube boiler, in which the water is carried in a series of tubes amongst which the hot gases from the furnace give out their heat. It has the advantage that it is more concentrated, and therefore lower down in the hull of the ship ; and the added advantage that steam, in case of emergency, can be raised more quickly. Water-tube boilers, with various improvements, have held their own almost up to the present day.

The engines were the usual reciprocating types until the introduction of the steam-turbine. Instead of a steam piston working in a cylinder, the turbine enables the steam to be taken

direct to the propeller-shaft, which it revolves by striking against a series of steel blades fitting closely inside a fixed turbine-box.

The turbine enables greater power to be developed for less weight, and therefore higher speeds to be developed.

Parallel with these developments came the gradual introduction of oil fuel in place of coal. The coal had various advantages, and was only abandoned with reluctance. In the first place we produce it in our own country; and there was, and is, nervousness about the supplies of oil fuel from abroad. The late Admiral of the Fleet Lord Fisher was the driving force behind the introduction of oil fuel; and he had it in his mind that it was only a question of a few years before the oil fuel itself would be produced, by various processes, from our own coal in our own country. In this Lord Fisher was perfectly right; but he was a little in advance of his time, for it is only in the last few years that the production of oil from coal has become a practical possibility.

Again, the coal bunkers themselves, built into the sides of the warships and full of coal, provide an excellent means of protection for the engines and boilers from gunfire.

The disadvantages of coal, as compared to oil, are that it is an appalling business to fill up the bunkers of a large modern warship with coal; and some of our large coal-burning cruisers, when they were empty of fuel, with everyone on board hard at work, would sometimes take three days and nights to fill up again. The oil fuel is pumped on board through a hose, and it can be taken on board at sea from an oil-tanker in fair weather.

Another advantage of oil, as compared with coal, is that, for the same weight of fuel carried, a far greater distance can be steamed. This increase is as much as 30%

At the present day the only coal-burning ships remaining on the Navy List are a few small gunboats. The whole of the rest of the Navy is oil-burning. A fleet of oil-tank vessels has been provided to bring the oil from the Gulf of Mexico or Persia, and huge oil depots have been provided in all the naval ports and at the coaling stations abroad.

But the next stage in naval development, on the marine engineering side, will undoubtedly be the Diesel engine, so called

after its German inventor. This is an internal combustion engine, on much the same principle as a motor-car engine driven on petrol, but burning heavy oil.

The Diesel engine differs in certain essential respects from the petrol-engine. For example, the petrol-engine requires a certain high grade of fuel and will not run on anything else. The Diesel engine will take almost any heavy fuel, is extremely reliable, and has the highest thermal efficiency of any type of engine yet invented.

Compared to the water-tube steam-boiler and geared turbine-engine described above, almost the last word in modern engineering, the Diesel will travel about four times the steaming distance for the same weight of fuel. This type of engine was perfected for modern purposes in submarines, though, owing to the air-supply difficulty, it can only be used on the surface. The submarine, which I shall describe in greater detail in a subsequent chapter, uses as her motive power, when once submerged, electricity run off accumulator batteries. The very large Diesel engine is still in an experimental stage. Without a doubt it is the future means of propulsion for all warships, large and small, and will be as great an advance on even the most modern steam-engine with turbines as the latter was over the primitive Scotch boilers and reciprocating engines. Its cost, however, is heavy, and it will be some time before it is generally fitted. The Diesel is the marine engine of the future.

CHAPTER III

MODERN WARSHIPS AND THEIR WEAPONS (1)

Ships-of-the-line—"Battleship" a misnomer—All warships are battleships—The basis of warship design—Guns and armour—Anti-torpedo protection—Mines—Minesweepers and paravanes—Modern artillery—Effect of treaties for limitation of armaments—Battle-cruisers—The dreadnought type—Cruisers—Aircraft-carriers—Are they worth their cost?—Effect of aircraft on naval strategy.

IN the previous chapters I have traced the history and development of the Royal Navy, explaining the gradual growth of its functions and its importance in controlling communications, communications in their turn being the life-blood of civilization.

I will now describe the fleet of to-day as regards the vessels themselves, their characteristics and their various duties. Beginning with the largest, strongest and most costly type, are the ships-of-the-line. I use the old description, which is more accurate than the modern term "battleship" and "battle-cruiser". These names are of comparatively recent origin, and have led to misconceptions. *All* warships are designed for battle. They all exist to destroy, or assist in destroying, the enemy.* It is true that cruisers and armed merchant vessels are used in war for other important functions, for the defence of trade, either for patrol purposes or in convoying merchant ships; or in attacking trade. But in the course of all these duties they must be prepared to fight. The only exceptions are such vessels as coastguard cruisers to prevent smuggling, fishery-patrol vessels for attending on the fleets of deep-sea trawlers, and the little river gunboats

*Much nonsense was talked at the World Disarmament Conference at Geneva in 1932 about "offensive" and "defensive" warships. All warships are offensive, if used in an offensive strategy; and all warships can be used defensively in a defensive strategy. The confusion of thought exposed at Geneva is one more result of the ascendancy gained by the materialistic school in several navies, including, to our danger, our own.

in the Chinese and African rivers. All these latter are really police vessels, and it is only for convenience that they belong to the Royal Navy at all. Indeed, in the old days the Customs' cruisers used to belong to the Preventive Service and were distinct from the Navy, just as the Coastguard Service is now no longer under the Admiralty, but belongs to the Board of Trade—I refer, of course, to the Coastguard Service on shore.

There are also the vessels of the very valuable service of surveying under the Hydrographer Royal, employed in the scientific and humanitarian duty of charting the oceans and coasts of the seas. These surveying vessels are manned by naval officers and ratings, and carry light guns; but they are not fighting ships in the proper sense of the word.

In political discussions about the Navy, the term "capital" ship is sometimes used when a battleship is meant. This, again, is the wrong use in the present day of an old naval term. A capital ship is the largest and most powerful ship *in the area*, or her sisters, through whom power is exercised. Thus, if there are no ships-of-the-line in that part of the world, cruisers or even gunboats become the capital ships. In the Great War a little gunboat mounting a small cannon, carried in sections to Lake Victoria Nyanza in the middle of Africa, took "command of the sea" on this huge inland area of fresh water. Similarly, in the fighting with the "Red" warships in the Caspian Sea, after the Great War and the Russian Revolution, quite small war vessels were the capital ships. But "battleship" is a term that has come to be accepted, and I shall have to use it to describe the most powerful of the capital ships. And these may not be the largest; for at the present moment a battle-cruiser, the *Hood*, of the Royal Navy, is the biggest warship afloat; and in their day the huge protected cruisers, *Powerful* and *Terrible*, of South African War fame, built in the latter years of last century, were larger than the contemporary "battleships" or ships-of-the-line.

The naval architect has a certain problem set him. He must build a war vessel that does not exceed a certain size; but for a ship-of-the-line he must have a reasonable speed nowadays, 20-23 knots, which means 20-23 nautical miles an hour; he must provide certain protection and the most powerful artillery that

the design will carry. He wants a ship that can lie in the line of battle, inflict heavy damage on the enemy and stand punishment from big-gun fire, under-water attack, and—of increasing importance—assault from the air. The passive defence against gunfire is to have stout armour-plate along the side of the hull, from just below the water-line to well above it, and this armour is of very special design. If it is too hard it will be brittle and liable to break up; and if it is too soft it will be tough but will let the enemy projectiles through. Therefore the armour-plate rollers have elaborated a wonderful type of armour, the outer face of which is specially hardened and the inner face softened. And the whole is backed by several thicknesses of hard teak to withstand the terrific vibration of a blow from a shell weighing 900 pounds, fired with the tremendous velocity of modern artillery. And here mention might be made of the long duel between the ordnance maker and the armour-plate roller, which has gone on ever since the time of the first ironclads.

The ordnance makers have produced special shells for piercing armour containing only a small bursting charge, and with their points specially hardened. For bombarding purposes or firing against unarmoured vessels shells with less metal but more high explosives or poisonous gases are used.

At the present time the ordnance makers would appear to have beaten the armour-plate manufacturers, for, at moderate ranges, that is up to 8,000 yards, there is no armour that can be carried in a warship which will withstand the terrific impact of an armour-piercing shell fired from a modern heavy gun. It is because of this victory of the attack over the passive defence of armour that grave doubts are felt about the utility of the great armoured warship. But side-plating is not enough. At long ranges the shells come down at a steep angle of descent known as plunging fire, and it is therefore necessary to armour the decks. The practice has been, up till recently, to fit an internal protective deck of armour-plating, shaped like the shell of a tortoise, in order that plunging shots will not reach the magazines, engines and boilers. Now that it is necessary to guard also against bombs dropped by aircraft, the practice has grown up of armouring the upper deck itself, so that, likening a

modern ship-of-the-line to a house, the walls and the roof are armour-plated.

The great guns are enclosed in strong steel-armoured redoubts known as turrets or barbettes, according to their design ; and the practice has also grown up of enclosing the secondary armament in steel boxes for the protection of the guns and their crews.

Lastly, some form of under-water protection must be provided, for in any future battle the torpedoes will be running about under water as thickly as the arrows at the Battle of Hastings. The whole of the hull cannot be armoured under water, because of the weight ; so what is known as bulging is resorted to. The name comes from the special blisters, each a built-out, rounded projection of thin steel plating, such as was improvised at the beginning of the last great war ; and the same principle is followed now. The idea is that the thin outer skin will take the explosion of a torpedo and keep the damage away from the engines or other vitals of the ship. This bulging has meant wider hulls under water, and in the case of large ships-of-the-line this has created an awkward complication, since there are very few dry docks in the world that can take a modern war vessel of the largest size. For example, until a large floating dock was towed out to the naval harbour of Singapore, there was no dock in any British possession in Asia, east of Suez, that could take the largest dreadnoughts.

Not only are ships-of-the-line—because of their cost, few in number, and therefore a case of many eggs in one basket—exposed to bombs from the air, gunfire and under-water torpedoes, but the mine is a great menace.

The moored submarine mine is, nowadays, a pear-shaped metal container charged with high explosives. It is anchored to a weight known as a sinker, which lies at the bottom of the sea, and is held in place by a wire rope at a certain number of feet below the surface of the sea. A passing vessel, striking it, explodes the mine, and the result is usually total disablement, if not destruction. Moored submarine mines accounted for the British dreadnought *Audacious* off the north coast of Ireland in the early days of the Great War ; and one of these terrible engines

of destruction sank the armoured cruiser *Hampshire* and drowned her distinguished passenger, Field-Marshal Earl Kitchener, when on a voyage from the Orkney Islands to Archangel.

Mines can be laid from submarines, as was done in the case of those that sank these two war vessels ; or from torpedo-boat destroyers ; or from special vessels of the cruiser type designed to carry and lay them.

The defence against mines is, in the first place, to sweep certain channels clear by means of minesweepers. These are small, high-engined vessels, which do not draw much water, that is, their hulls do not reach far below the surface, and they work in pairs, having a wire rope between them taken down to the required depth by a water kite. Their function is to sweep up the mines ahead of the fighting ships.

At the beginning of the last war the British Navy was short of regular minesweepers. Fortunately, we had an excellent substitute in the deep-sea fishing trawlers. These made good minesweepers, and the fishermen were used to this kind of work. They performed most gallant service, the value of which it is almost impossible to over-estimate, for the Germans had made elaborate preparations for mine-laying, and sowed the waters of the North Sea with minefields under cover of darkness. The trawlers swept them up and kept vital passages clear for warships and merchant vessels all through the war.

Naval ingenuity has designed a type of sinker which keeps the mine close to the bottom of the sea for a certain time, which may be hours, or days, as required, when a soluble plug melts by the action of the sea water and releases the mine to float up to its dangerous position. The idea is to lay the mines by stealth where the enemy fleet is supposed to be likely to pass, and for them to remain on the bottom until the minesweepers have swept the area and reported all clear : when they bob up and, it is hoped, catch the unsuspecting big ships.

But minesweepers cannot operate very far out to sea without delaying the fleet ; and so there is another defence fitted, known as the paravane. This is a most ingenious device, and consists of a kind of fish-torpedo which, when towed along, remains well under water. It is held by a steel rope to the very forefoot of the

warship. The forefoot is at the bottom of the stem or piece of steel that acts as a cutwater, right in the bows. The war vessel at sea, therefore, carries two of these paravanes, which float out at the end of their wire ropes like a cat's whiskers. Meeting the mooring rope of a mine, the paravane has a steel-cutter which cuts the mooring rope and carries the mine well clear of the hull of the ship.

From the above it will be seen that an up-to-date war vessel needs an elaborate defensive equipment. There has been a tendency to overdo the passive defence of armour. All history teaches that the best defence is attack, the overwhelming of the adversary by superior fire. At the London Naval Conference of 1930 the Americans opposed a reduction by agreement in the size of battleships because, they argued, only a very large ship could be effectively armoured, and only such a protected ship could hope to fight a battle and keep the seas afterwards without docking. They were thinking of the Asiatic squadron defending the Philippine Islands against the Japanese. Surely a far-fetched argument! For the upper works, with their important control instruments, would be sure to suffer damage and would need elaborate repairs for efficiency. I suspect that the real reason was dollar-pride. My naval friends from across the Atlantic hug the delusion that only their country can afford the modern battleship and, therefore, naval power; a delusion, because wealth alone has never saved a nation.

Now to come to naval weapons of offence. There is, first, the primary armament. This consists of very heavy guns—in the latest war vessel of 15 or 16-inch calibre. The latest British, American and Japanese ships-of-the-line all carry 16-inch guns, with a fighting range of fifteen or even more sea miles, and tremendous smashing effect. Thus the *Nelson* type in the Royal Navy carries nine of these huge weapons, the American *West Virginia* type eight, and the Japanese *Mutsu* type eight also. In the *Nelson* they are carried in three heavily armoured turrets mounting three guns each. And each gun can be fired about once in fifty seconds. The American and Japanese warships already referred to carry their guns in pairs.

The whole broadside can be fired simultaneously; but this

is asking rather too much of the mountings ; and the practice is to fire, in the case of the *Nelson*, three guns at a time, one in each turret, in what are known as salvos. By the time the first three shells have reached the target, the next three will be half-way over, and the third three will just have left the gun muzzles.

The secondary armament consists of lighter quick-firing guns, also mounted behind armour, for firing at torpedo-boats or destroyers attacking the big ship by day or by night. In the *Nelson* type these are guns of 6-inch calibre, firing 100-pound shells. Then there are the anti-aircraft guns mounted for high-angle fire, the *Nelson* carrying six of 4.7-inch calibre, firing a forty-five-pound shell, and her American prototype eight 5-inch high-angle guns firing a sixty-pound shell. These, as their name indicates, are for shooting down aeroplanes ; but they are reinforced by a new and curious type of gun composed of nine, or even twelve, barrels, firing one-pound shells in clusters at a tremendous rate, on the same principle as a Maxim machine-gun fires rifle bullets. The idea is to spray the air in the track of the attacking aircraft with small explosive or exploding shells. Lastly, all ships-of-the-line, in all navies, carry at least two or three torpedo tubes for firing torpedoes at the enemy in action.

This, then, is a brief description of the modern ship of the line ; except that the tonnage is 33,500 in the case of the *Nelson*, 32,600 in the case of the *West Virginia*, and 33,800 tons for the *Mutsu*. The *Nelson* has engines developing 45,000 horse-power, giving her a speed of 23 knots ; the *West Virginia's* engines are 28,900 horse-power, giving her a speed of 21 knots ; and the *Mutsu* has engines of 46,000 horse-power, driving her at a speed of 23 knots.*

It is quite possible that these will be the last great ships-of-the-line ever constructed for any navy in the world ; for they cost some six to seven million gold pounds sterling each ; and their yearly running costs are half a million pounds each. They have a crew of about a thousand men apiece. They are a far cry from the sailing warships of the old era, and they are the last word in fighting strength and power.

The "life" taken for a battleship in the latest treaty for the

*Compare with description of sailing ship-of-the-line *Queen*, in the last chapter.

limitation of naval armaments is twenty years, but this depends on the amount of money spent from time to time on refitting and repairing. With proper care a large, well-designed ship will last for thirty years at least.

The Battleship Fleet of the Royal Navy consists of twelve ships, all oil-burning; and the latest was completed in 1925. The two last coal-burning battleships, the *Iron Duke*, Admiral Jellicoe's famous flagship in the Grand Fleet, and the *Marlborough*, her sister ship, finished their careers as fighting ships in 1931, the *Marlborough* being broken up and the *Iron Duke* turned into a gunnery training ship. Both of them had a great deal of life left, and were excellent ships in every way; but they had to be demilitarized under the terms of the London Naval Treaty of 1930. This is an expensive system.

Ships-of-the-line usually cruise and work together in squadrons of six or eight ships; and in action the most useful and usual formation is single line ahead; that is, they steam along in single file, if possible on a parallel course to the enemy, but in any case in such a way that they can use all their broadside of guns. Five hundred yards is the recognized distance between each two ships in the line.

I shall describe, later, the fighting methods, how the gun-fire is controlled, etc., but it is now necessary to deal briefly with other types of vessels.

The battle-cruiser, also a ship-of-the-line, is in reality a fast battleship, some armour and gun power being sacrificed to speed. They are a very costly type, and only three navies in the world have ever built this class of warship—our own, the Japanese, and the German. All the German battle-cruisers were either destroyed in the war or sunk by their own crews at Scapa Flow after the Armistice. This self-sinking, incidentally, was a blessing in disguise; for the ships would have only been handed over to other navies. Indeed, some of the French naval officers have believed to this day that it was an arranged act of self-destruction, with our own naval authorities conniving.

However this may be, there are only eight battle-cruisers in the world now—four British and four Japanese; and one of the British, the *Tiger*, the last of the pre-war battle-cruisers, has

to be disposed of shortly under the terms of the Naval Treaty of London.

This will leave three, the *Hood*, *Renown* and *Repulse* in our Navy. All have a speed of some 31 knots, and the *Hood*, as mentioned earlier, is the largest warship in the world. She was laid down in 1916, completed in 1920, weighs 41,200 tons, and develops the tremendous horse-power of 144,000 by means of geared turbine engines. She mounts an armament of eight 15-inch guns as her main battery; the secondary armament consists of twelve 5.5-inch guns; there are four 4-inch anti-aircraft guns; and six torpedo tubes. The other two are the *Renown* and *Repulse*, similar but rather smaller, carrying six 15-inch guns; and the *Repulse* has ten torpedo tubes.

The battle-cruiser is the lineal descendant of the old 74-gun ship. The sailing three-decker ships-of-the-line mounting from 100 to 130 guns were the battleships of their day; and the 74-gun ships were the light battleships, with rather superior sailing powers, which could be used as frigates or cruisers, but were able to lie in the line.

The function of the modern battle-cruiser has always been a little obscure, and there have been great controversies in naval circles as to the value of this type of ship relative to her cost. For, when only a certain sum can be spent on ship construction, it is desirable to get the best value for the money. The idea of the battle-cruiser sprang from the fertile brain of the late Admiral of the Fleet Lord Fisher. His idea was to build a man-of-war so fast that she could catch anything afloat, and so powerful that she could smash any warship met with except a battleship of the line. But these vessels are so powerful that they form an adjunct to the battle fleet proper; and no admiral would ever allow them to go on detached services if he could help it. In the Great War the Germans used them for raiding purposes against the English coast, and we used our battle-cruisers to intercept and bring the German raiders to book; but always there was the notion that if the great battle fleets came to grips, the battle-cruisers must be there too.

The recognized tactics have been to station the battle-cruiser squadron at the head of the line of battle so that with

their superior speed they can gradually edge across the bows of the opposing battle fleet and carry out the manœuvre known as "crossing the t" ; that is, bringing the broadsides of one's own fleet to bear against the limited ahead fire of the adversary. This was the position in which Admiral Jellicoe found himself at Jutland with the whole Grand Fleet, all but one slower squadron that had not reached the fighting area from the mouth of the Thames. When the fleets were visible through the mists, the British Fleet had half crossed the "t" of the High Sea Fleet. Admiral Scheer, commanding the German Fleet, found himself in the worst possible position for engaging in battle. The visibility was poor, and that is how the two fleets first observed each other clearly.

I shall have more to say about this battle presently, and will only remind my readers now that Admiral Scheer extricated himself by a right-about-turn, covering his retreat with a torpedo attack by his destroyers. Admiral Jellicoe responded with a manœuvre that has been the subject of hot controversy ever since, and probably will be for years to come. Instead of following up, he turned away so as to avoid the torpedo attack and allowed the German Fleet to run out of sight in the low visibility. Judgment of this action depends largely on whether the judges consider that he had a good chance of renewing the action next morning or not.

But to return to our battle-cruisers.

The argument against them is that for the same expenditure of money the more powerful battleship type can be built, while lighter and cheaper vessels could be used for ordinary cruiser duties.

All these types of battleships and battle-cruisers are improvements on the original dreadnought model, which also was an outcome of Admiral Fisher's notions of strategy. The first modern vessel of this type was given an old naval name, borne by many sailing three-deckers, and she established a departure in construction subsequently followed for capital ships in all the world's navies. Prior to this revolutionary type of war vessel, the ships-of-the-line carried a mixed armament. Her immediate predecessors, the battleships of the *King Edward VII* type,

mounted four 12-inch, four 9.2-inch and ten 6-inch guns. Contemporary warships built for other nations were similar. The *Dreadnought* carried a main battery only, but it consisted of ten 12-inch guns; and she mounted nothing else except a few light pieces of artillery for use against torpedo craft. This battery was unheard of in those days, and certainly outclassed that of any other warship afloat. She was heavily armoured and the largest ship-of-the-line for her day, being approximately 18,000 tons displacement; and she certainly outshone all other large fighting ships. The *Dreadnought* was copied in the principal navies of the world, and set the pace for a race in naval armaments which only culminated in the Great War.

The first battle-cruisers that followed her were only fast dreadnoughts. The *Tiger*, the flagship of the Grand Fleet, was a superdreadnought; and the *Nelson* of to-day is a hyper-superdreadnought.

The influence of Admiral Fisher, with its unsound competition in mere size, may be traced in all naval construction over a period of twenty years; but for many reasons it is extremely doubtful if any more of this type will be built for any navy in the world; for a capital ship can be a small war vessel so long as she has not to meet anything much more powerful—and this becomes merely a question of limiting tonnage by international agreement. For, given a certain size, and therefore a certain cost of both building and upkeep, the naval architect can only put so much power into his product.

It will be convenient here to refer to the latest German capital ship, the *Ersatz Preussen*, which created a great sensation in naval circles, indeed the greatest furore since the *Dreadnought* of twenty years earlier. It is possible that she has created another revolution in naval architecture.

When Germany was disarmed after the war under the terms of the Treaty of Versailles, she was allowed to maintain half a dozen pre-dreadnought battleships only, and to replace them as they reached twenty years from their date of completion. They were not to be replaced by anything of larger tonnage than 10,000.

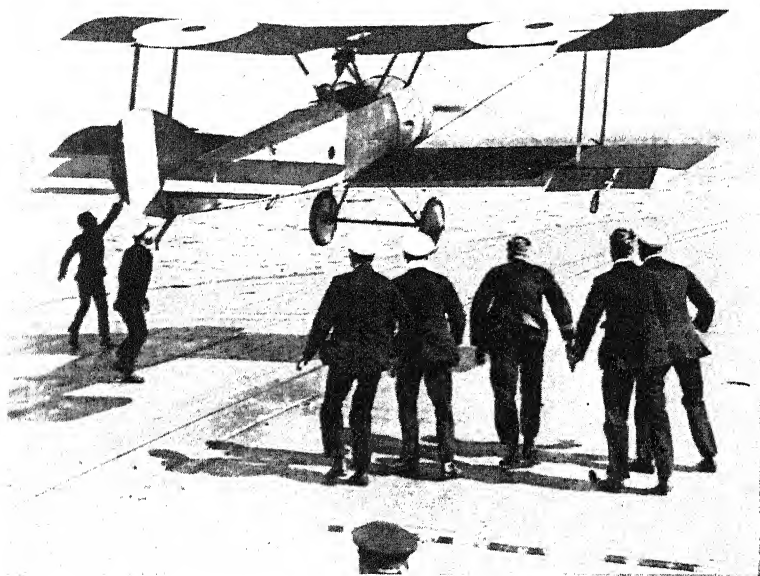
The German naval architects determined to show what they could do and to make the best job they could of shipbuilding

under these limitations ; and they produced this extraordinary war vessel. She is not really a ship-of-the-line in the accepted sense of the term, but a light battle-cruiser. By saving weight everywhere and using acetylene welding instead of riveting, aluminium instead of cheaper but heavier metal, and, above all, by installing the Diesel engine (*see* Chapter II), a war vessel has been produced which has fluttered all the naval doves. On this tonnage the German "pocket battleship" develops 54,000 horsepower, giving her a speed of 26 knots, and carries two armoured triple turrets accommodating six 11-inch guns, the secondary battery consisting of eight 6-inch guns ; and there are six torpedo tubes.

The reason for the disturbance in the minds of the French naval authorities is that she is faster than the French ships-of-the-line and more powerful than any of the French cruisers. And the French Admiralty proposes to build a couple of capital ships, the only new ones in contemplation in any navy in the world, as an answer. These are to be 23,000 tons displacement, though the details are not known. The new German "pocket dreadnought", however, as she is called (though this is a misnomer), has not, as I write these words, yet been tried-out at sea, and may be a failure ; but I venture to prophesy that she will set the pace in naval construction just as Lord Fisher's original *Dreadnought* did.

Incidentally, it is not always safe to compare war vessels one with the other on paper, counting only their tonnage, armour protection, guns, etc. Thus the ships-of-the-line of the German Fleet built prior to and during the Great War were apparently more powerful, for their size, than the corresponding vessels in the British Navy ; but the comfort of the crew was sacrificed, which affected their sea-keeping capabilities. They were badly ventilated, uncomfortable, crowded, and the idea was that most of the crew should live in barracks until the fleet actually went to sea.

In the British heavy ships the accommodation was designed so that the crew might live on board always and thus retain their efficiency. The armour protection of the German battleships was superior to that of our own ships-of-the-line ; but the morale



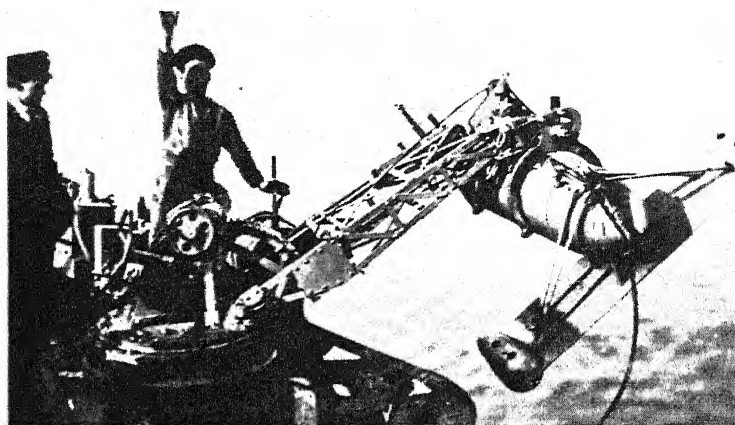
Imperial War Museum



Imperial War Museum

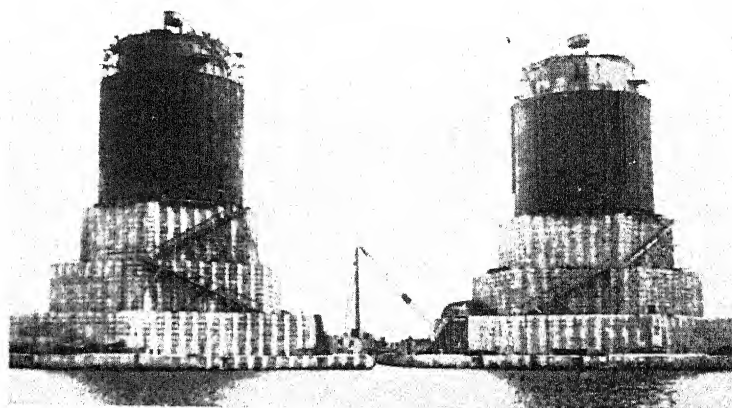
Above : SOPWITH "PUP" LANDING ON THE DECK OF H.M.S. "FURIOUS".
A FEW SECONDS AFTER THE PHOTO WAS TAKEN THE MACHINE
WAS BLOWN OVERBOARD AND THE PILOT DROWNED

Below : AEROPLANE FLYING FROM PLATFORM FITTED
TO THE TURRET OF H.M.A.S. "AUSTRALIA"



[Abrahams, Devonport]

PARAVANE READY FOR DROPPING



[Abrahams, Devonport]

ADMIRAL FISHER'S MYSTERY TOWERS

and discipline of their sailors suffered, and the spirit of the German Navy broke before the end of the war ; which shows once more how many considerations must be taken into account in appraising the value of a fleet.

The next type of war vessel to be described is the cruiser. She is the descendant of the frigates of the sailing-ship era. A light, fast vessel, her functions are to act as a scout, or look-out, for the ships-of-the-line, to protect trade, act as a commerce destroyer when required, and serve on foreign stations in peace and in war, and generally to carry out many other and various duties.

No navy ever has enough cruisers. Admiral Nelson, in his long blockade of the French Fleet during the Napoleonic wars, was always crying out for more frigates ; and declared that when he died the words "more frigates" would be found written on his heart. In the old days frigates were known as cruisers also, especially when employed away from the fleet ; and to-day the word cruiser denotes what has become the backbone of the modern navies of the world. The modern cruiser carries light side-armour, but usually depends for her protection on a sloping armoured deck over the engines and magazines. What may be called standard cruisers have varied in size during the last thirty years from about 3,000 tons up to 23,000 tons, as, for example, the huge *Powerful* and *Terrible* mentioned earlier.

A hybrid type of war vessel appeared at the beginning of the present century known as armoured cruisers, with considerable protection and heavy armament. They were intended to carry out much the same functions as the battle-cruisers already described. They were about 15,000 tons in size, but are now looked upon as an uneconomic expenditure of money.

The modern cruisers are limited in tonnage, by international agreement amongst the five principal navies of the world, to a weight of 10,000 tons under the Washington Treaty of 1921. And there are some nineteen of this latest type on the British Navy List already.

Again by international treaty, they are not allowed to carry larger guns than 8-inch calibre, which are mounted in turrets. The British *Norfolk* type, completed in 1930, may be taken as

typical of similar vessels in our own, the American, Japanese, French and Italian Navies. On this displacement of 10,000 tons eight 8-inch guns are mounted, a battery of small artillery for anti-torpedo-boat use, and eight torpedo tubes. Geared turbine engines develop 80,000 horse-power, giving a speed of 32 knots; and they are supposed to go everywhere and do everything except, in wartime, to engage ships-of-the-line.

The British Navy has always been strong in cruisers, because of our long trade routes to be defended, our scattered overseas possessions, and the dependence of our country on sea-borne supplies. Thus there are fifty-three cruisers on the British Navy List, and five building, the next strongest cruiser fleet being that of Japan with thirty-seven built and four building. These Washington-type cruisers, as they are called, are expensive for their size, costing about £2,000,000 each; but they are not as expensive as the German *Ersatz Preussen*; and if this latter type is adopted generally the bill for shipbuilding in all navies will mount rapidly.

This 10,000-tons type is rather too big and expensive for its functions. Too weak to oppose battleships, she is too strong for cruiser functions proper. It is a pity that the size was not still further reduced by international agreement. In the Royal Navy we need a large number of cruisers because of our long trade routes and our scattered Empire. The smaller the better, providing other navies agree not to build anything bigger and consequently more powerful. Actually, we have been driven to build rather smaller cruisers of 7,000 to 8,000 tons. Here the Americans insist on maintaining the 10,000 tons limit, because of their lack of coaling stations and overseas bases. Larger ships mean more oil and therefore a larger radius of action. But I must again point out that mere size, within reason, matters little. Correct strategy and good leadership are far more important.

A properly balanced battle fleet should have at least twice as many cruisers as ships-of-the-line, and in wartime the remainder would be performing various functions on the trade routes.

I come now to a type of warship that has only been evolved quite recently, and had no prototype in the old fleets. This is the aircraft-carrier, which has come into use through the invention

of the aeroplane and its adaptation for naval purposes. They are colossal ships, and cost as much as the most powerful battleship. In fact, the United States Navy built a couple, the *Lexington* and *Saratoga*, that have proved the most costly war vessels in the world. These are the only two specially built for the purpose, all the others having been converted from battleships or battle-cruisers, though Japan and the United States are each building new aircraft-carriers especially. Thus our own three large aircraft-carriers, the *Courageous*, *Glorious* and *Furious*, were originally built as light battle-cruisers. They have been reconstructed from truck to keelson, their heavy gun turrets abolished and their upper decks cleared, as far as possible, of all obstructions in order that aircraft can use them as aerodromes for landing purposes.

They store their aeroplanes in roomy holds, carrying them to the upper deck with lifts, where they fly off, the ship being turned head to wind for the purpose. A jet of steam in the bows enables the helmsman to keep the ship accurately head to wind. When the aeroplanes wish to return once more the parent ship turns head to wind and they land on her upper deck. Their run is checked by a ramp, or up-hill incline, just before the 'planes reach the lift. It used to be accomplished by the 'planes picking up a series of hempen ropes with sandbags at the end of these ropes. This method is now obsolete. In the American carriers wire ropes, operating hydraulic rams, check the run.

The three large British aircraft-carriers are 22,000 tons displacement, and are armed only with light guns for repelling torpedo attack.

In some cases the furnace smoke is carried out over the stern so that there are not even funnels to impede the upper landing-deck; and the bridge, conning-tower and signalling stations are placed right away to the side so as to have as long and clear a run as possible. The *Lexington* and *Saratoga* have a displacement of 33,000 tons.

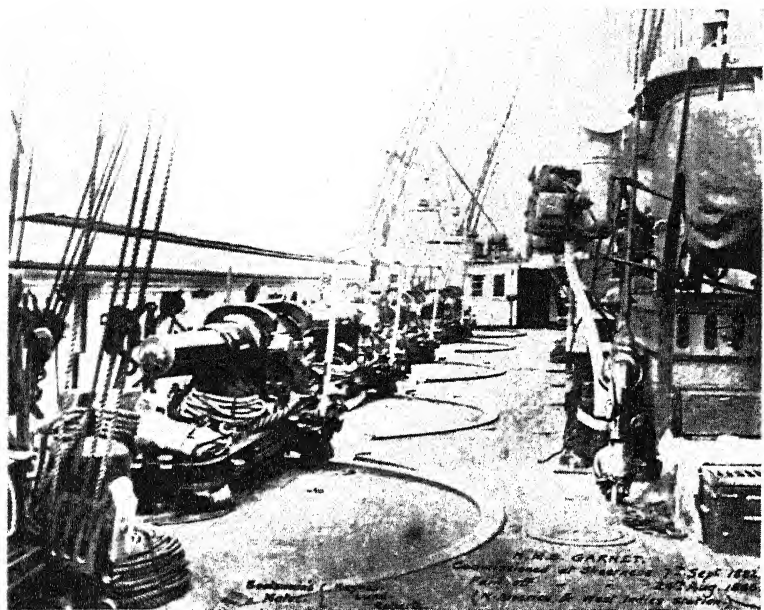
The functions of the aeroplanes themselves are to act as scouts, as artillery observation machines, marking and reporting the fire of the battle fleet by wireless, and as aerial guardians to drive off and destroy attacking aircraft. But they can also attack

warships or, for that matter, merchant ships from the air, and this by three methods.

Bombs can either be dropped on the decks, or, what is even more effective, close alongside to explode under water and act as submarine mines; they can carry torpedoes, swooping down from the clouds close to the surface of the water, and there launching them against the war vessels attacked; or they can use their machine-guns against any exposed persons on the decks of the adversary.

Aircraft have introduced a new method of fighting in naval warfare; but owing to the cost, and therefore the scarcity of aircraft-carriers, the greatest menace is from aircraft squadrons flown from the land in the event of a fleet reaching within striking distance of enemy aerodromes on shore. For example, a war fleet operating in the Mediterranean, with either France or Italy hostile, would be exposed to great danger of attack by clouds of aeroplanes, or seaplanes, flying from aerodromes and harbours in southern France, North Africa, or Italy. The power of this new weapon of offence at sea lies in the swiftness and comparative cheapness of aircraft. For the cost of a £7,000,000 battleship, at least eight hundred very fast and powerful aeroplanes can be built; and they can attack in the various ways I have mentioned.

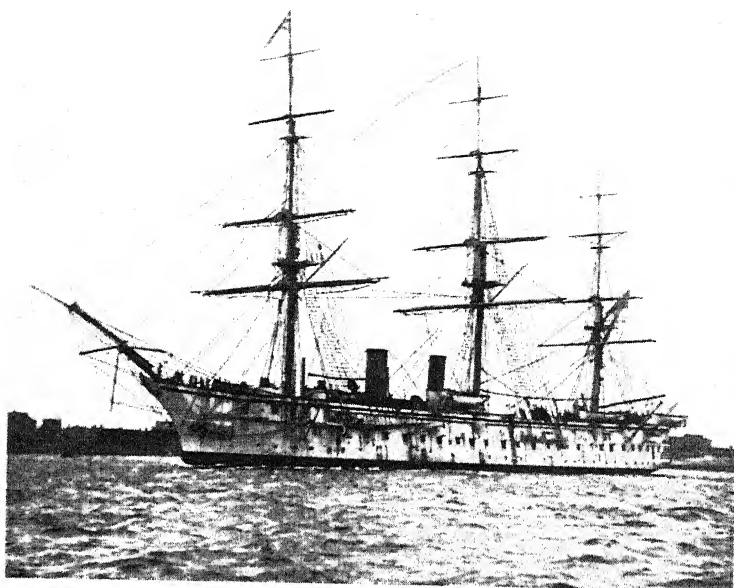
In the elaborate experiments carried out under realistic conditions by the joint Board of Investigation set up by the American Congress, when aeroplanes flown from shore attacked modern warships, extraordinary results were achieved. One of the targets was the German superdreadnought *Ostfriesland*, surrendered to America under the Peace Treaty. She had been specially constructed to resist under-water attack by torpedo and mines, and was claimed by her German naval architects as unsinkable. Four 2,000-pound bombs were aimed to explode in the water alongside of her; that is, they were not aimed to hit the ship itself, but to act as under-water mines exploding near the hull. Water is practically incompressible, and the effect of a heavy under-water explosion is to drive a mass of water against the hull of a ship near, when it acts as a huge hammer. When these four bombs were dropped and exploded, the bows of this great battleship were literally lifted eight or ten feet out of the water, and



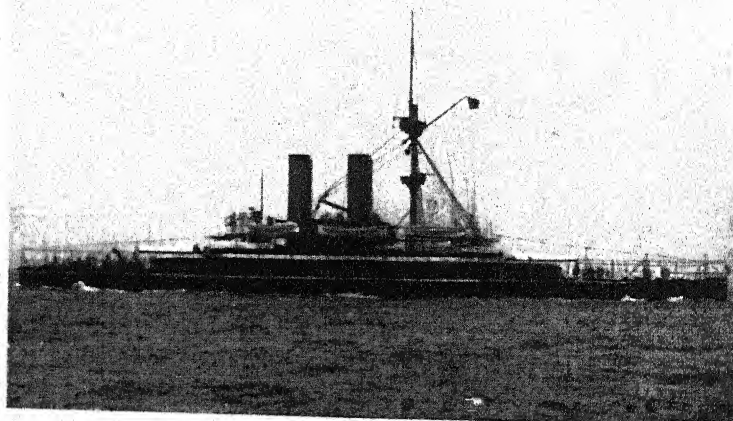
[Imperial War Museum]

Above: SAIL AND STEAM IN THE '80'S. H.M.S. "GARNET"-GUN BATTERY

Below: H.M.S. "VOLAGE"



[Cribb, Southsea



[Cribb, Southsea

Above : CRUISER "BACCHANTE", COMMISSIONED
1879, ENTERING PORTSMOUTH
Below : H.M.S. "CAMPERDOWN", 10,500 TONS, 16.5 KNOTS,
FOUR 13.5-INCH GUNS. COST £769,000

the bottom of her hull was driven right in. She sank within ten minutes of the dropping of the fourth bomb.

This is the quickest time in which a large ship has ever been sunk by under-water attack.

One of the American battleships, comparatively modern, the *New Jersey*, was also used as a target. She was hit near the water-line by one 1,100-pound bomb, began to fill with water, and in about a quarter of an hour had turned turtle and sunk.

A surrendered German submarine, the U17, was attacked by three flying-boats, each carrying three light bombs only, of 180 pounds weight. They swept down on the doomed submarine, which was at anchor on the surface, let go their nine bombs and darted up again. The bombs fell on the decks and near the hull of the submarine; there was a series of blinding flashes and tremendous upheavals of water; and then it was seen that the submarine was literally cut in half and sinking.

A German destroyer was attacked and sunk in the same way; and the ex-German cruiser *Frankfort* was sunk by the explosion in the water alongside of only one 600-pound bomb charged with high explosives.

These experiments showed the tremendous force of the attack by well-equipped aircraft and the very destructive force of these large aerial bombs. And it must be remembered that the bomb carried by an aeroplane contains a relatively greater weight of explosive than the shell fired from a warship's big gun. For a projectile from the gun must withstand the force of the discharge and the tensions of travelling at tremendous speed for seven or eight miles through the air. The walls of the shell must therefore be thick, and much of the weight goes in this metal. The aeroplane bomb is a pear-shaped or cigar-shaped vessel of thin metal, nearly all the weight being the actual explosive.

Another example of the power of the air weapon under conditions similar to those of active service was the suppression of the Chilean naval mutiny in the autumn of 1931. The Chilean Navy had always been regarded as an efficient and well-organized force, trained on the British model, and, in the early years of its formation, under British officers. Most of the vessels of the Chilean Fleet were built in British shipyards, the most powerful

being a battleship built at Elswick, commandeered at the outbreak of the Great War for the British Navy, which fought in the Grand Fleet at Jutland as *H.M.S. Canada*.

She mounts the tremendous battery of ten 12-inch guns, is heavily armoured and a most powerful capital ship. This battleship, and the cruiser *O'Higgins*, a comparatively modern war vessel, were seized by their crews in a revolutionary mutiny. The rebels, with a few small craft, defied the Chilean Government, but were brought to their senses by a small number of Army aeroplanes flying from the land. The Chilean Government did not wish to destroy these ships, and so only light bombs were used; but after a few sporadic attacks, despite defending themselves with their anti-aircraft guns, the rebels had had enough of it, and five thousand of them surrendered with their ships in the course of an afternoon.

The *O'Higgins* was set on fire by a bomb and badly burnt. The upper works of the battleship were seriously damaged. Yet this was not an attack that was pressed home; and the most modern bombs were not used. Nor had the few available military machines been specially fitted for the purpose of attacking warships.

The above illustrations show the great power of aircraft, which are a new factor in naval strategy that will have to be taken into account.

CHAPTER IV

MODERN WARSHIPS AND THEIR WEAPONS (II)

Aircraft in sea operations—Destroyers—Importance in modern fleet—Their functions—The torpedo—Description of mechanism—Early submarines—Description of submarine—Her capabilities and limitations—How submarines are attacked—Submarines in the Great War—The "Q" ships—Illegality of submarines on trade routes—Britain's unpreparedness and Germany's lost opportunities—How we might have lost the war.

IN the last chapter I described the carrying of torpedoes by aircraft, first used in war in the Dardanelles operations, when British airmen attacked and sank Turkish vessels inside the Dardanelles Straits.

Some remarkable manœuvres have taken place since the war with torpedo-carrying aeroplanes attacking squadrons of the British Fleet steaming at sea in war formation.

For peace manœuvres, the explosive war-heads of the torpedoes, with their guncotton charges, are removed and dummy heads of soft copper substituted. When the torpedo strikes there is no explosion; but the copper head is concertina'd, little damage being done either to the hull of the warship attacked or to the torpedo itself.

The following are the details of one of the most noteworthy of these experiments carried out in the summer of 1927, explained in a letter by Admiral Mark Kerr in the *Morning Post* of June 16, 1927:

The battle fleet was sent to sea with orders that if a smoke-screen was dropped from the air the formation of the Fleet was to be broken up in order to reduce the target offered to torpedoes. Air scouts found the Fleet and wirelessly in their position. High-flying aeroplanes came out and dropped a smoke-screen on either side of the

battle fleet, which promptly broke up its formation. A few seconds later, low-flying torpedo aircraft arrived and, taking their bearings by the mastheads of their targets, seen over the smoke-screen, and without passing through the latter, fired blind, and 41 per cent. of hits were registered without the battleships ever having seen their attackers. Some time later, aircraft of the R.A.F. attacked a British squadron in a fog in the Channel, and scored seven hits out of eight shots.

A fleet defends itself against such attack by the aeroplanes carried in the aircraft-carriers and by aeroplanes carried in the warships themselves. All the latest battleships and cruisers are fitted to carry aeroplanes which are launched into the air by large catapult machines. The British, American and Japanese fleets have all adopted this method of launching aircraft, and every battleship and every cruiser carries one or two, usually fast fighting machines for the interception of attacking bomb- or torpedo-carriers, and shooting them down with machine-guns.

Even the larger ocean-going submarines can carry seaplanes, housed in a special watertight compartment on the upper deck. These are used for scouting purposes when the submarine is acting as a cruiser or commerce destroyer.*

But to return to a description of the warship proper. I now come to a very important portion of any modern fleet, the torpedo craft. The smaller torpedo-boats are practically obsolete, except for coast and harbour defence. As mentioned earlier, torpedo-boat destroyers were introduced in the first place to meet the menace of the French flotillas of torpedo-boats in the English Channel.

But now the destroyers, as they are usually called, have grown in size, can keep the seas for considerable periods, and a flotilla of them always accompanies a battleship squadron. Built primarily for speed, armed with torpedoes and light quick-firing guns, they are extremely handy vessels, and are an integral part of the modern navy.

There are 132 destroyers in the present-day British Fleet, and

*The ill-fated M2, the British submarine sunk off Portland with all her crew in January 1932, was of this type.

a score more building. The Japanese Navy has 105, the American Navy about 200, and the French and Italians about 60 each. Long, low, rakish-looking craft, usually painted black, they are commanded by young officers, and the largest of them to-day carry a crew of 80 to 100 men. Special large destroyers, known as flotilla leaders, of which there are 16 in the British Navy, are beginning to approximate to small cruisers, reaching 1,500 tons in size.

The French flotilla leaders are over 2,000 tons displacement and are as big as the cruisers of a generation ago. Modern destroyers are about 1,000 tons displacement with a speed of 34 knots. In the latest ships building, four 4.7-inch guns are carried, half a dozen anti-aircraft guns, and eight torpedo tubes. They serve as escorts to the battle fleet, and as convoys to merchant ships, and they are the natural foe of the submarine.

In naval operations a battle fleet would always have a screen of destroyers spread out in the shape of a fan to cause any lurking submarines to dive deep. In action the destroyers work in flotillas, at each end of the battle line, attacking the enemy fleet with their torpedoes, if opportunity offers, and driving off the enemy flotillas if they attack in their turn.

At night the destroyers are a special menace to the big battle-ships. For, a couple of their torpedoes getting home, if they did not sink the latest type of superdreadnought, would seriously injure her.

They can also be fitted for mine-laying; and their weapons against submarines are depth charges. These are barrel-shaped metal containers filled with high explosives and with an arrangement that can be adjusted to make them explode a certain distance under water. If the periscope of a submarine is sighted, or the track of the bubbles of a running torpedo after it is discharged, the destroyers speed to the spot where the submarine is expected to be submerged and the whole area is sown with exploding depth charges, laid at top speed.

The destroyer service is looked upon as a splendid means of training young officers and seamen, and has always been a highly efficient branch of the Royal Navy. One of the modern functions of destroyers in a major action is the laying of

smoke-screens by the release of certain chemicals, in order to hide the movements of the big ships.

A brief description of the modern torpedo itself will be in place here, for this weapon, now carried by all ships large and small, is especially the weapon of the torpedo-craft service and of the submarine, and has profoundly affected naval strategy and ship construction. The torpedoes of the German submarines, used very ruthlessly against the merchant shipping of all nations, nearly turned the whole tide of the Great War in favour of the Central Powers by stopping overseas supplies.

The general appearance of this long, cigar-shaped steel weapon of destruction is well known. Until required, it is carried in its tube, and at the beginning of its errand is blown out from this tube into the water. Once in the water, however, it is driven by its own engines, the motive power for which is compressed air, and the exhaust from which causes the track in the water. An internal combustion engine has been introduced as an auxiliary means of propulsion.

The torpedo itself is a most ingenious piece of mechanism. It is necessary that, once it is in the water, it shall run straight; for if anything goes wrong it may turn in a half-circle and run back, to endanger one's own friends. Indeed, this has actually happened on more than one occasion. Also, there must be no danger of its exploding until it has travelled a certain way on its course. In the nose, therefore, which contains the high explosive, usually guncotton, is a revolving fan. As the torpedo speeds through the water this fan unwinds and withdraws the safety bolt from the striker. On the torpedo hitting an obstruction this striker fires a cap, which explodes a small charge of dry guncotton, which in its turn detonates the bursting charge of wet guncotton, wet guncotton being used because of its greater safety. If required, net-cutters, sharp revolving shears of steel, are also fitted in the nose; but torpedo nets are obsolete now and are hardly ever carried by modern warships.

It is necessary that the torpedo shall run at a certain depth, and a hydrostatic valve is therefore fitted. The lower in the water the greater the pressure, and the valve is so adjusted that it can be set to run the torpedo at the depth required. If the

torpedo gets below its depth the valve operates a horizontal rudder to make the torpedo swim high, that is, nearer the surface. And if the torpedo is running too shallow, down helm is given; that is, the rudders are moved to make it dive deeper.

There is also a swinging pendulum weight. If the nose of the torpedo dives, the weight swings forward and again operates the horizontal rudders, bringing the torpedo back to its required depth.

But the most ingenious part of the mechanism is the gyroscopic steering gear. A heavy spinning-wheel, by a well-known law of mechanics, tends to keep its axis pointing always in the same direction. On the torpedo being released, pointing in the direction it is meant to run, the heavy gyro-wheel begins to spin. If the torpedo wanders from its aimed direction, the axis of the gyro remains pointing in the true direction and moves a little trigger, which operates a small engine known as the servo-motor; and this servo-motor actuates vertical rudders like the rudder of an ordinary ship, and so brings the torpedo back to its course. Indeed, the gyro steering gear operates as if there were a little man inside the torpedo constantly steering it on its course.

Nowadays the large modern torpedoes, which cost about £2,000 each, have an effective range of five miles. At the end of every run in wartime they are set to sink. But in peacetime it is arranged that they will come to the surface so that they can be recovered and used again.

Another device for use in wartime is to set the torpedo to run straight for, say, 8,000 yards out of its total run of 10,000 yards or five sea miles, and then to perform a series of figures of 8, the idea being that it is fired to run a distance of 8,000 yards and then cross the tracks of a line of warships. If it happens to pass in between two ships, it will zigzag back and have another chance of striking a target. The torpedoes on board, and the mechanism for firing them, are looked after by a special class of seamen trained for the work, known as seamen-torpedomen; and an officer known as the torpedo lieutenant, still more highly specialized, is in charge of all torpedo work, and has a good deal to do

also with the general electrical equipment of the ship, including the searchlights.

It was the invention of the mobile torpedo that acted as a stimulus to the invention of the submarine. The idea of a vessel that will swim under the water like a fish is of respectable antiquity. But the first submersible torpedo-boat was built for the French Navy at the end of last century. The first British submarine was built in 1901; and in order to keep this fact secret she was described as a pontoon, just as the first mobile armoured field caterpillar tractors for the Army in the Great War were called tanks. And though the word tank has struck to them ever since, and has now passed into official phraseology, submarines were never called pontoons after the first one was completed. The invention of an American, the early boats were of the *Holland* type, and five of these little vessels were built. They proved quite tractable, and led to valuable experience being gained. They corresponded to the early torpedo-boats of the 'seventies of last century, from which have evolved the modern large powerful destroyers. The submarine came later in the field, but its evolution has been even more rapid.

From these modest beginnings at Elswick submarines grew in size and power; and some of them to-day are literally submersible cruisers, mounting heavy guns. Even during the Great War 6-inch guns were mounted in submarines, and used for bombarding purposes at the Dardanelles. There are two submarines on the Navy List which mount a single 12-inch gun in a turret. The turret does not move round, but the submarine herself is moved to bring the gun on the right bearing so that she can fire in the desired direction. Indeed, this type of vessel is really a floating gun-platform which can dive under the sea.

I mentioned above how a small seaplane has been carried in a submarine; and if present developments continue we may come to the submarine battleship. But the torpedo is still considered the main weapon of submarine craft.

This type of ship has introduced three-dimensional warfare. The submarine has one very great advantage in that she can dive and so hope to escape from superior forces. She can hope to pass out to sea unobserved from a blockaded port. And she

can approach her target, if all goes well, without betraying her presence. Indeed, the great quality of the submarine is that of strategical and tactical surprise. She is the only type of fighting ship possessing this quality in herself, and this may be held to compensate for her many disadvantages.

I will now describe the broad characteristics of a submarine ; for, except for certain refinements and an increase of size, the first all-British submarines that followed the little *Holland* established a model which has been followed ever since. The French submarines, the German U-boats, the modern American submersibles, in their essential features are large or small editions of the same type.

Here we have a vessel which must be strongly constructed to stand water pressure at considerable depths, and which must, of course, be absolutely watertight. It is fitted with tanks, which are filled with water, the fluid being admitted gradually towards the end, until the submarine just has positive buoyancy, that is to say, it is barely floating, and the addition of another few hundredweights of water would send it down. Its engines then drive forward and its horizontal rudders steer it under the water. If the submarine stopped it would, in this driving trim, as it is called, float up to the surface. This is the opposite to what happens to an aeroplane when it "stalls", that is, loses flying speed and falls down. Just as the aeroplane is kept in the air by the speed of the engine driving the oncoming air under its wings, so that in spite of its being heavier than air it remains in the air and can mount to a great height, so the submarine remains under water by the force of its engines, though its buoyancy tends to bring it to the surface. Most fish, it must be noticed, have positive buoyancy ; for if a fish is killed it floats to the surface. Some fish—the crustaceans, for example—have negative buoyancy. On the surface modern submarines are driven by Diesel engines ; but below water, when diving, they rely on the current from their batteries to drive them by electrical power. When running on the surface the engines, in addition to propelling the boat, drive the dynamos and continually keep the batteries charged. This is the same principle as a motor-car engine recharging the lighting battery.

In the early French submarines, and in some later large submarines of the British K class, steam-engines were used on the surface burning oil fuel. But these have been abandoned, and Diesel engines, burning heavy oil, are now universal.

Those who have read Jules Verne's great imaginative romance, *Twenty Thousand Leagues under the Sea*, will remember that his submarine always travelled under water and only came to the surface for special purposes. But the submarine of fact reckons always to cruise, or make her passages, on the surface and only dive to escape from enemies or to approach her prey unobserved.

If she dives too deep, there is a danger of her buoyancy being lost. Then the tanks are blown, which means the water is blown out of them by compressed air, of which she carries a supply; and the way some submarines were lost was by going to such a depth that the compressed air was not strong enough to drive the water out of the ballast tanks.

The above is a brief description of the principle of a submarine—though submersible would be a better word to describe this type of vessel. The rest are trimmings. A submarine is in its essentials a simple machine, made possible by the invention of the electric motor and the accumulator battery.

The periscope, the principle of which is well known, enables the commanding officer to see above the surface of the sea without the hull of the submarine being exposed, and it consists merely of two mirrors, one reflecting into the other, the upper mirror being at the end of a pole. Actually the periscope is in the form of a telescope; and can be raised and lowered so as to scan the surface at intervals without altering the depth of the submarine. Two periscopes are usually fitted.

The art of attacking with a submarine depends on skill in judging the distance, speed and direction of another vessel on the surface through a periscope from a submarine twenty or thirty feet under the water. It takes a long time and a great deal of practice to learn to do this. Indeed, it takes longer to instruct, train and produce good submarine crews and, still more, good submarine officers than to build the submarines themselves. This was the real cause of the failure of the German submarine campaign in the late war. The Germans ran short of good

submarine officers and, towards the end, of good submarine crews through casualties, loss of nerve, bad health, etc. If the Germans had known of the real potentialities of the submarine at the beginning of the war, or, still worse, before it, they could have beaten us at sea. This may sound a startling assertion, but it is absolutely true, and every experienced staff officer who took part in the war operations, and especially in the anti-submarine campaign, will bear me out.

Many means of combating submarines have been developed since 1916, while the submarine herself has improved little in general design. Nor is there much scope for improvement except in size—the value of which, beyond a certain point, is doubtful—and in certain equipment or “gadgets”. Submarines will not have so much effect on future campaigns at sea in the awful event of another war; but in the first war in which they were used the surprise effect was great.

If the German Admiralty had provided twice as many submarines and three times as many trained officers and crews so as to act as reliefs—which could have been done—if they had known what submarines could accomplish in the absence of experience in combating this undersea menace, the grand attack on allied and neutral shipping would have succeeded and the war would have ended in a victory for the Central Powers. As it was, the margin of available tonnage was nearly wiped out. In the month of April 1917 the sinkings of merchant ships, all of them serving the Allies directly or indirectly, reached the colossal total of 849,000 tons. And there were only six million tons of British shipping available for the carriage of troops and supplies for ourselves and our Allies. If this rate had been maintained the Allies were doomed. As it was, the Germans had not quite enough submarines available, and the slowly developed counter-measures began to take effect. But it was the nearest thing to utter defeat that the English people have known during the past three centuries.

Yet the submarine is vulnerable in herself and has many irremovable defects. The accumulator batteries which drive the submarine under water are very heavy, and a submarine can only proceed for a certain distance when submerged, because

she can only carry a limited number of accumulators. She is slow when submerged, ten knots being about the maximum speed, and six more usual; and unless she shows her periscope she is blind, while if she shows her periscope she gives away her position, and it must be remembered that she is doubly vulnerable under water. When pursued, therefore (and I shall describe some methods of combating submarines), if the depth of water is suitable and the bottom of the sea firm and smooth, a submarine will descend gently and lie on the bottom until danger is past.

I mentioned the guns that submarines carried, and they now carry anti-aircraft guns. The German submarines, early on in the Great War, were armed with 4-inch guns. One of them met a patrol sloop flying the White Ensign off the coast of Ireland. The surface man-of-war was a hurriedly constructed ship armed with short-range 12-pounder guns, which the submarine captain found he could outrange. The U-boat on the surface was also faster than the sloop, the usual speed of a submarine on the surface being about 21 knots. So he kept out of range of the sloop with his superior speed, and literally shot the unfortunate vessel to pieces. This was the first occasion on which a submarine engaged a surface warship in battle.

Thereafter the submarines on the trade routes, when they could, preferred using their guns against merchant ships on the surface to diving and torpedoing.

The fastest submarines on the surface ever constructed were the K class steam-driven type, which developed 25 knots, and were of a special design for cruising at sea with the fleet. But now the idea of using submarines in conjunction with the fleet itself has been abandoned in most navies. They would usually act on a strategic plan, but tactically separated from the surface warships.

The torpedo tubes are carried, usually, in a bunch of four in the bows and with others on the broadside. They are fixed tubes; that is, the ship has to be turned to get the torpedo tube on the right bearing, and on the whole the larger ocean-going submarines are somewhat clumsy and unwieldy.

The reason why the destroyers are the natural enemy of the submarine is that owing to the high speed of the destroyers and

their quick turning they can dash in quickly on to the submarine and shoot her to pieces, if she does not dive, with their quick-firing guns ; or sow the area all round her, if she does dive, with their depth charges, described earlier in this chapter. Also the destroyers do not lie very deep in the water, and therefore present a somewhat small target to the submarine's torpedoes. Once they have located the submarine under water, if there are enough of the destroyers, they can spread themselves out all over the area and keep her down until she has exhausted her batteries and is compelled to come up. In one case such a submarine hunt carried out in the English Channel for several days ended in the U-boat coming to the surface and surrendering. If the submarine moves her engines under water, the destroyers can hear her by means of instruments called hydrophones, designed for listening under water ; and the beat or rhythm of a submarine's engines is very distinctive.

Furthermore, there is a device now in use by which the steel hull of a submarine can be located by means of an electric wave projected through the water, the "echo" of this wave indicating precisely where the submarine is. Still another method is to tow an electric cable with suitable instruments along the bottom in case she is lying there. On the instrument touching the metal of the hull it immediately indicates the presence and the position of the lurking foe.

The use of the aeroplane against the submarine depends on the fact that the aeroplane can travel so quickly that she can fly down on to the submarine on the surface and attack with her bombs before the submarine has time to dive. For when a submarine is in surface trim, her tanks are empty ; it takes a little time to fill them to get her into diving trim, and the operation has to be performed carefully, or she gets negative buoyancy and sinks to the bottom like a stone before the water can be blown out of the tanks.

The idea of the anti-aircraft guns mounted on the deck of a submarine is to keep hostile aeroplanes at a distance until the submarine is in diving trim.

The air is purified when the submarine is submerged by various chemical devices, including the use of oxygen ; but even without

these, if the vessel is thoroughly ventilated before she dives, she can stay under water for two, or even three, days without much harm coming to the crew.

A number of submarines have been sunk both during peace and in war, accidentally in the first place, purposely in the second, by being rammed and the hull damaged by impact with another ship. A surface ship has maximum buoyancy and can have a considerable hole driven in the hull and yet reach safety. But even a small hole in the hull of a submarine upsets her buoyancy, which is very slight in any case, and down she goes.

Various net devices were used in the late war to keep submarines out of defended harbours; but submarines can break through these by having cutting apparatus fitted to their hulls; and their engines are so powerful that they can break through all but the strongest obstructions.

Moored mines are another means of destroying submarines. We laid thousands of anti-submarine mines in the Heligoland Bight, mostly from destroyers operating at night, to catch the German submarines putting to sea from Wilhelmshaven.

Another device that is very deadly, and for the use of which special ships have been constructed in the present-day Fleet, is to lay a very light net, something like a herring net with a wide mesh, supported on the surface by large green-glass globes. A submarine passing through this net tows it along; this is indicated by the action of the globes on the surface, and then it is a matter of dropping depth charges.

Submarine can also fight submarine—not when they are submerged, for both are then blind—but by the following methods. We used to send our submarines to lie in wait, with only their periscopes showing at intervals, where we thought the German submarines would be proceeding on the surface to reach their cruising grounds. The submerged British submarine would then try to stalk her quarry and torpedo her, and we accounted for several of the German submarines in this way. Indeed, at one time we were building special submarines for this very purpose with an extra number of torpedo tubes for making war on enemy submarines.

An ingenious trick was for a trawler to tow one of our own

submarines under water, which gave her the appearance of a fishing vessel engaged in towing her trawl net along the bottom of the sea for catching fish; but when Fritz, as we used to call German submarines, appeared out of the depths to destroy the fishing vessel, the towrope was slipped and our own submarine would try to get a torpedo in.

The "Q" ships, or mystery ships, were only an adaptation of a very old device. Heavily armed, they were disguised to look like ordinary cargo steamers.

In the French wars we were much troubled by very fast French sailing vessels, privateers, that would issue from St. Malo, Cherbourg and other ports, attack merchant shipping and, by their superior speed, escape from our defending frigates. So we would heavily arm a merchant ship and camouflage her, put a numerous and valiant crew on board, and, when the French privateer thought he had made a rich capture, he found he had caught a Tartar.

The same idea was developed with the "Q" ships. They were, in appearance, peaceable cargo steamers or other merchant ships; but they had hidden guns, and when the submarine attacked the sides fell open disclosing powerful cannon, and the submarine usually got the worst of it. Later on, the submarines became more wily and would only torpedo ships from under water, however innocent-looking their outward appearance; but then, before the doomed vessel finally sank, the submarine would need to come to the surface to identify her. And if the "Q" ship's crew could stay on board long enough until their ship almost sank under their feet they would get a chance to retaliate. Certain of the crew used to be "told off" to act as a "panic party"; that is, when the ship was torpedoed they would actually launch a small boat and take to it with every appearance of alarm. Indeed, the methods of destroying submarines were very similar to the methods of catching fish. Fish can be killed or caught either by a bait or lure, by a net, or by explosive discharge under water. The bait or lure were the "Q" ships; the nets I have described; and the explosions under water were provided by aeroplanes or destroyers.

A fleet at sea guards itself against under-water craft by having

a screen of destroyers thrown out all round to make the submarines dive and keep them under water, blinded, so that they cannot aim their torpedoes ; and by the big ships themselves zigzagging.

Merchant ships in the war were also taught to zigzag, the advantage of this being that the submarine is slow under water and must arrange her course so that she cuts off the approaching vessel ; and it is far easier for her to do this if the course of the approaching vessel is steady and not altered frequently. Frequent alterations of course naturally upset the submarine's plans.

In a later chapter I shall describe the epic submarine campaign. The German attempt to win the war by the use of submarines, and the methods of combating it, was probably one of the greatest episodes in the whole history of naval warfare.

The general consensus of naval opinion nowadays is that submarines will not be very effective against well-equipped surface fleets. We now know too many methods of combating them ; and they are too slow and clumsy under water. But, if another war comes to plague the world, they will undoubtedly be very effective in operations against merchant ships, especially on the scattered trade routes at long distances from the land. For the patrol vessels cannot be everywhere, and a submarine with her Diesel engines and her special construction has actually a greater sea-keeping capacity than the more lightly built destroyers, her natural foes. Used as cruisers on the trade routes, therefore, they are a serious menace to mercantile shipping. For they can carry guns of such range and power as to overwhelm any cannon that the average merchant ship can mount. But submarines are an inhuman weapon, because, unlike the ordinary surface cruiser, they cannot carry enough men to put a prize crew on board a captured merchant vessel, nor can they accommodate her crew on board their own submarine if they destroy her. Indeed, the old laws of war, recognized internationally in the past, prior to the Great War, laid it down that no captured merchant ship could be destroyed out of hand at sea except in the most exceptional circumstances. All captures had to be sent into a Prize Court to be properly judged. The rules of war at sea used, on the whole, to be very rigidly observed, and nowhere, until the coming of the submarine, did legality have a stronger

hold on war operations than in the exercise of the rights of blockade and capture at sea. There was a general recognition of the need of a code for sea warfare, and also a rough chivalry of the sea that was faithfully observed. But that has nearly gone by the board, to use an old naval expression, since the invention of the submarine. The very fact that a submarine can efface itself when assailed by superior forces and can evade patrolling war vessels makes it particularly useful as a commerce destroyer. But, because of the nature of the submarine itself, it can only operate effectively by literally destroying the commerce; that is, by sinking captured vessels and letting the crew, who are recognized as non-combatants in a merchant ship, and the passengers fend for themselves in open boats perhaps hundreds of miles from land.

In both the 1921 Naval Conference at Washington and the 1930 Naval Conference in London, attempts were made to draw up a new code of war for submarine operations; but these codes as proposed, especially in the 1930 Treaty, permitted a submarine captain to sink a captured merchant vessel on the high seas; and, in any case, neither of these Treaties has been ratified by the greatest submarine power, France. Indeed, the French Navy is building more submarines than the Germans ever did, and appears to be concentrating on this type of war vessel. In this, as indeed in other directions, the French Government is adopting a peculiar attitude, which does not promise well for the future peace of the world.

I said above that the German naval authorities were slow to appreciate the potentialities of the submarine. From the Allies' point of view this was fortunate, since the British Admiralty was just as slow. Even up to the outbreak of the Great War, the submarine had been looked upon merely as a coast-defence vessel. Its power of conducting distant operations was unknown to the highest authorities. Yet, curiously enough, there had been a plain warning in the great British naval manoeuvres of 1913, waged, as usual, between a Red Fleet and a Blue Fleet. The Red Fleet operated from the Firth of Forth and the Blue Fleet from Dover and the Thames. Any vessels attacking the Blue coasts from Dover or the south had, by the rules of the manoeuvres,

to proceed such a distance out into the North Sea as to make their total passage equal to that of a hostile navy coming from Europe to these islands. And yet a Red submarine, commanded by an officer who did very good war service at the Dardanelles, after covering this distance representing the steaming distance from the German naval ports, actually entered the Firth of Forth, dived under Forth Bridge, dodged the patrols and torpedoed the Blue flagship (with, of course, a dummy-head torpedo), moored in fancied security above the bridge in the estuary.

Yet in spite of this plain lesson, which, I may add, created a considerable sensation at the time in naval circles, the Grand Fleet, on which the whole Allied cause depended, cruised in the most leisurely fashion, in order to conserve its fuel, up and down the North Sea within easy striking distance by submarines from the German ports. This it did for weeks at a time—and not only that. The fleet used to stop every day in the open sea and take on board mails sent from the English ports. If the Germans had sent twenty efficient submarines—which they could have done—to lie in wait, they could have wiped out our naval superiority in battleships in half an hour.

We started the Great War with not a single naval port, north of Dover, that was submarine proof. When we awoke to the perils of the situation we bought up old merchant ships and sank them in the entrances to Scapa Flow, the great inland sea in the Orkneys, which we then used as our main base, so as to narrow the passage; and we improvised booms with heavy nets and explosives to deter submarines from attacking into the harbour. And this was only after the sinking of three old armoured cruisers, the *Cressy*, *Hogue* and *Aboukir*, by one submarine in the southern part of the North Sea, the greatest blow ever struck by a small ship in the annals of naval warfare. This brought home the potentialities of the submarine and torpedo to even the most unimaginative.

These old ships were kept patrolling at slow speed without any destroyers to chaperon them; and yet the blow might easily have fallen on the flower of the British Navy. After that, we went to the other extreme, and, while the defences at Scapa Flow were being feverishly got ready, the whole Grand Fleet took refuge

in Lough Swilly on the north-west coast of Ireland, only to lose the *Audacious*, a modern superdreadnought, on a minefield laid by a submarine, as I have mentioned already; and while the Grand Fleet was hidden in the mists of Donegal the German High Sea Fleet could have had a clear run into the English Channel and cut off the communications of the British Expeditionary Force and all our means of succouring our French allies at a most critical period of the land campaign.

Fortunately, if our Admiralty was slow to appreciate the potentialities of the submarine, the German Admiralty showed woeful lack of initiative in not exploiting the situation, and, above all, lost a great opportunity for raiding the Channel, an action which might have turned the whole course of the war.

However, all history demonstrates that the side which wins a war is the one which makes the fewest mistakes.

I will end this chapter by relating an amusing but true incident which happened in the early days of the war. Some very high French naval authorities were sent to Scapa Flow to confer with the British Commander-in-Chief and his staff. They went by train to Thurso and were taken in a torpedo-boat destroyer, commanded by a friend of mine, across the Pentland Firth to Scapa Flow. As they entered the great naval base, the French admirals were on the bridge of the destroyer, scanning the hill-sides with their binoculars and expressing great admiration and amazement at the way the defensive batteries had been hidden and camouflaged. The commanding officer of the destroyer informed them, with natural courtesy, that there were no batteries, and that this great naval port was undefended. The Frenchmen flatly refused to believe him, saying that they quite understood that even allies could not be initiated into naval secrets, but that there must be powerful batteries established there, and it was only my friend's politeness that led him to attempt to deceive them.

And to this day, I feel sure, the archives of the French Naval Staff contain a description of the wonderful camouflage of the non-existent batteries at Scapa Flow.

CHAPTER V

THE MEN OF THE FLEET

Main divisions of the personnel—Promotions from lower deck—Entry and training of seamen—Petty officers—"Square-rig and "fore-and-aft" uniform—Signalmen—Difficulty of training in seamanship—Plea for sail training—"Special service" entries—Mates—Reasons for abolition—New methods of promotion—Stokers—The home ports as manning depots—Which ports provide best crews—Mechanicians and artificers—Explanation of military and non-military branches—Other branches—Ship's police—Warrant officers—Divers—The Royal Marines—Training and duties—Advantages and disadvantages of a naval career—Better living conditions—Marriage in the Royal Navy—The Reserves—Weakening of Reserves owing to aliens in British merchant ships—Clothing and uniform—Badges of rank—Officers' uniform.

IN earlier chapters I have dealt with the history and development of the Royal Navy, and particularly with the evolution of the different types of men-of-war.

What of the crews who man our modern warships? They are in many ways more important than the ships themselves. The most wonderful products of the scientist, engineer and naval architect are of little account without well-trained, well-disciplined officers and men who know their business and who can be relied on to face the perils and dangers of naval life, even in peacetime; while the dread ordeal of battle at sea calls for the very highest qualities of human endurance, skill and courage.

Broadly speaking, there are four main divisions amongst the personnel of the Navy, and each has its own officer corps. These are the seamen who navigate the ships and man their armament; the engine-room personnel who supply the motive power through the engines; the marines who have the dual training of soldiers and sailors; and the skilled artisans, these

latter including the shipwrights, carpenters, armourers, electricians, blacksmiths, wireless telegraphists and numerous other skilled ratings.

There is also a catering and accountant branch under the paymaster-officers, who look after the cooking, victualling, and pay; and also the immense amount of paper work, which has grown enormously in recent years, and which, in the opinion of many experienced sea officers, has attained an artificial importance far beyond its utility. Finally, every ship from light cruisers and above carries a chaplain for the spiritual needs of her crew, a clergyman of the Church of England; and every *Fleet* has Roman Catholic and Nonconformist chaplains for the particular religions of the officers and men of the squadron. But the chaplain's branch differs from the others in that it consists of ministers of religion who do not even hold commissioned rank; for the lay preacher has not yet appeared in the Fleet and is not likely to.

The complimentary name for the chaplain is Padre; the derisive nickname, Holy Joe or Sky Pilot; and the abusive term Devil-Dodger. There is an old naval fable of two bluejackets discussing which of the officers in their ship had the least work to do; and the controversy raged between the Captain of Marines and the Padre. Finally they decided that the Captain had the least to do because the Padre had no one to help him, whereas the Captain of Marines had two lieutenants at his disposal.

As a policy has now been adopted, after several false starts, or rather, I should say, revived, whereby every seaman-boy who enters the Navy has an admiral's flag in his ditty-box,* to remould Napoleon's old phrase, I will begin with a description of the method of entry and training of the seamen. As stated above, there is now supposed to be an avenue of promotion from seaman to commissioned rank; and commissioned rank means all ranks of officers up to admiral. There were several very gallant flag officers of a bygone era, notably Anson and Sir Cloudesley Shovel, who entered through the hawsholes, as the old expression had it, or, in other words, started before the mast; but in my

*The ditty-box is a small, square, scrubbed deal box of uniform size and pattern carried by every rating, in which he keeps his personal possessions and treasures. This is the one sacred receptacle that a seaman has on board a crowded man-of-war.

time there has only been one—a seaman who reached the rank of warrant officer, was specially promoted to commissioned rank, and retired as an admiral.

The hawseholes are the large holes in the bows or forepart through which runs the cables, or hawse, attached to the anchors. All modern ships carry stockless anchors, which are hauled right up into the hawseholes, where they fit and remain stowed at sea. But the older ships carried the anchors further back, or aft, on anchor beds; and there was room for a man to creep through the hawsehole and so reach the forecastle. The idea which originated this expression was that an officer promoted from the lower deck had crept in through the hawseholes at night and found his way on to the quarter-deck.

However, the policy now is to promote suitable seamen earlier in life to commissioned rank; and as future promotion is then largely a matter of years, these should have a better opportunity of reaching command, and, finally, flag rank, in a certain number of cases, before reaching the age for compulsory retirement.

Prior to the 'seventies of last century the entry of seamen was somewhat haphazard. They signed on for a commission; and when their ship paid off they were free to go where they liked, either to the shore, or in some cases for a voyage or two in a merchant ship.

A certain number, even then, entered through training ships and Greenwich School; but the present long-service system was only introduced some sixty years ago. Boys of 15 to 17 years of age are entered and either sent to the *Impregnable*, a floating training ship, or rather a series of old warships reduced to hulks, moored in Devonport harbour; or to Shotley Barracks, near Harwich. They enter for twelve years' service as seamen, the boys' time not counting towards this, and may re-engage for a further ten, making twenty-two years in all, when they are entitled to a pension.

The Navy can pick and choose, for there are plenty of applicants, and only boys of good character, physique, and a fair education are taken. Many of these young entries, especially in the West Country, come from hereditary naval families, some of whom have sent their sons into the Navy for several

generations. Thus quite a number of the sons of former warrant and petty officers come to sea imbued with naval traditions. In the training ships they receive instruction in seamanship, boat work, elementary gunnery, signals, and musketry. Their general education is also cultivated, and certain of them, of special aptitude, are picked out to specialize in signalling and wireless telegraphy.

After a little over a year in a training establishment they go to sea, as first-class boys with 1s. a day pay, where they continue their instructions and assist in the ship's work. At the age of 17½, if they show special qualities, they are rated ordinary seamen, receiving pay at the new scale of pay of 2s. a day. As boys they live in messes by themselves in charge of selected petty officers; and one of the lieutenants has the duty of looking after them. I have known as many as a hundred boys carried in a battleship; and their training was a serious duty. At the age of 18, if not promoted before, they are made ordinary seamen and continue their instruction in training classes. Before being rated able seamen, the ordinary seaman has to pass an examination in seamanship, gunnery, and the elements of torpedo work; and he must have put in certain hours in the engine-room learning the simpler duties of a stoker so that he can perform these in case of emergency.

The able seaman is the backbone of the military and navigating branches; and the man so rated need not rise any higher. But the smarter men usually try to specialize in gunnery and torpedo-work, for which purpose special classes are held in every ship. A further examination enables them to go to the gunnery or torpedo schools at the home ports and to become seamen-gunners or seamen-torpedomen, with extra pay and special badges, presently to rise through the hierarchy to gunlayers and turret gunlayers and gunner's mate, or leading torpedoman and torpedo-gunner's mate. The turret gunlayers and torpedo-instructors are usually petty or chief petty officers.

Good conduct—or, as the cynical amongst the seamen would have it, luck in not being found out—brings a good-conduct badge after three years and an extra 3d. a day pay, with a second badge and a third badge at five-yearly intervals. Gunlayers,

seamen-gunners, torpedomen, etc., have what are known as non-substantive ratings, and these do not give executive authority. The substantive ratings are leading seaman, petty officer and chief petty officer. An able seaman may be promoted to leading seaman on passing an examination and being recommended for the rank after two years as able seaman.

Petty officers are promoted from leading seamen after passing further examinations, including one in general education and elementary navigation. A petty officer, having served with ability for five years, may be rated chief petty officer. Leading seamen and petty officers have power of command over the able seamen and ordinary seamen; and a chief petty officer is a rating of considerable standing, authority and responsibility. Petty officers and chief petty officers wear the fore-and-aft rig; that is, the buttoned-up jacket and tight-fitting trousers, in distinction to the flowing garments, blue collar and open neck known as the square-rig. The blue collar, falling over the shoulders, comes down to us from the days when the seamen wore pigtails, and was worn to keep the grease or tar with which they anointed their hair from soiling their clothing.

A parallel branch with the seamen are the signalmen. These are recruited from boys or ordinary seamen who have shown special aptitude and specialized in this branch either in the training ships or afloat. Selected signalmen are advanced to leading signalmen, and, later, the best are promoted to yeomen of signals, corresponding to petty officers, and to chief yeoman, corresponding to chief petty officer in the seamen's branch.

Telegraphist, with petty and chief petty officer, is another rating, specializing in wireless.

A modern man-of-war is such a box of machinery, and the seamen require so much training in electricity, hydraulics and the mechanism of guns and torpedoes, that it has been difficult, in recent years, to give sufficient instruction in seamanship itself. The best training here is undoubtedly obtained in the destroyer and submarine service; but only able seamen serve in these ships, and the lack of sea-time in a reduced fleet, with economies exercised in fuel consumption, has made the suitable instruction of seamen *as seamen* a serious problem. Probably the best

antidote to the over-mechanization of the naval seaman would be to reintroduce training in sail. I referred earlier to the training brigs that still existed and did splendid service during my early years afloat, but were abolished through the over-zeal, in this direction, of the late Lord Fisher.

There is a belief, strongly held by many naval officers, which I certainly share, that it would be a wise policy to reintroduce training under sail. Work aloft develops certain qualities of initiative, handiness, courage and self-reliance for which no substitute has yet been found. If the Navy possessed three or four square-rigged sailing ships they would be cheap to run, and officers and men would undoubtedly benefit very considerably.

With the rapid expansion of the Fleet prior to the Great War, special-service men were entered, at a later age, for five years with the Fleet, then to join the Royal Fleet Reserve. This is a cheap method of building up a reserve and of obtaining seamen for the pully-hauly work and unskilled labour on board ship; and, though it has now become a normal part of the Royal Navy system, it was looked at askance by the officers and men at the time, and has many disadvantages. If the short-service seaman could do six months, or even three months, in a sailing training ship it would be a different story. But their efficient training is not easy under modern conditions in a man-of-war.

Under the new system of promotion to commissioned rank referred to above, suitable seamen and petty officers are picked out for promotion to the rank of sub-lieutenant. From this rank they can graduate up to flag officer, providing they are suitable, or lucky. Three years before the Great War the old title of mate was revived. The mates used to be assistants to the sailing masters, these in their turn being survivors of the old navy days of three and more centuries before, when men-of-war, improvised out of merchant ships, retained the master and his assistants as navigating officers, the naval officers of the day being fighting men, first and foremost. The title fell into disuse until revived for the purpose of promoting young warrant and petty officers to commissioned rank. But the scheme was not very successful, partly because the mates formed a class of officer by themselves and, whether by accident or design, suffered in subsequent

promotion. The title, therefore, has been abolished, and the selected ratings promoted to commissioned rank will now start all fair and square with the products of Dartmouth Naval College. Time alone will show the success of this revival of lower-deck advancement, but with the spread of general education and democratic ideas it has a good chance of success.

Stokers are entered later in life than the seamen. Men of the right type are taken between the ages of 18 and 25 for long service; but there is also a short-service system in operation. After training in hulks used as training ships, or shore establishments at the home ports, they go to sea as stokers first and second class, corresponding to able and ordinary seamen, and are eligible for promotion, in much the same way as seamen, to leading stoker, stoker petty officer, and chief stoker.

The home ports are the three ancient Royal dockyards of Portsmouth, Chatham, and Plymouth—Pompey, Chats, and Guzz—as they are known in naval vernacular. In each of these ports, in addition to the Royal dockyard, are barracks for seamen and stokers, training establishments, manning and recruiting depots, and here, normally, lie the ships in reserve or in partial commission. Each home port is commanded by an admiral as Commander-in-Chief. A seaman or stoker once entered at a home port nearly always returns to his depot there and remains attached to it as his manning port. The men who marry usually settle down in or near their own home ports, and, wherever possible, the ships of the Fleet return to their own home ports for leave.

With the challenge by the German Fleet before the war, a dockyard was needed on the east coast of Scotland. Rosyth was chosen and developed for this purpose, and it was intended to make this the fourth home port. But Rosyth has passed with German naval power, and is now only a skeleton of its former self. With the reduced Fleet three home ports are not really necessary to-day, and, if anything, the modern Navy is over-dockyarded. Various economy committees have proposed the abolition of Chatham, partly because of the air menace. But so much money has been sunk in bricks and mortar and machinery, and such important vested interests have grown up round these

dockyard towns, that no Government has yet been found with the courage to carry through this particular economy.

At the mouth of the Medway, a few miles from Chatham, is the very ancient port of Sheerness, which has played an important part in the past, but is now redundant. Attempts have been made to sell Sheerness. It is not a home port but an adjunct of Chatham.

There is always much rivalry between the three home ports and the ships manned from them. The officers may come from anywhere; but the ratings are drawn, ninety per cent. as to numbers, from the particular port where the ship commissions in the first place.

There are varied opinions as to which of the ports provide the best crews. Plymouth-Devonport means, generally speaking, West Countrymen and Irishmen; and the old legend was that a West Country crew could not be made to keep silent, but so long as they were allowed to talk they would work, and did their drills very smartly. Chatham, as a manning port, means a high proportion of Cockneys, which, again, means a high level of intelligence and quick-wittedness. Portsmouth and district very nearly provides an area of recruitment by itself, with a leavening from the home counties other than Hampshire, and a sprinkling of North Countrymen and Scots. Certainly the Portsmouth ships' crews vary a good deal. My own experience is that the West Country crews are uniformly good, that a Chatham crew, when it is good, is second to none, and that a Portsmouth crew can either be very good or very bad. But so much depends on the officers and so much on the petty officers, and these factors are both so very largely a matter of luck that it is impossible to generalize. At least the rivalry is healthy.

To return to my description of the various ratings. The increasing power of the engines and the use of oil fuel has led to a strengthening of the skilled engine-room ratings. Some of these are now recruited from the stoker branch. Suitable men are picked out for special instruction in the management of marine engines, and, if successful in passing the necessary examinations, are rated mechanician. The mechanicians are eligible for warrant rank, and, now, to commissioned rank as

engineer officers. This is in order to open an avenue of promotion for the stokers to commissioned rank.

But there is another very important branch of the engine-room ratings, and these are the artificers. These men are recruited from the skilled engineering trades on shore and must have qualified as boilermakers, engine fitters, coppersmiths, or similar trades, usually having served their apprenticeship in one of the big private shipyards or in the Royal dockyards. They go to sea as chief petty officers with the privileges of that rank, though they may be men in their early twenties. They mess by themselves, with a stoker or two to act as cook, mess-waiter and general factotum, and are eligible for promotion to warrant and commissioned rank.

There has also been introduced a system of training boys of good education as boy-artificers. These are entered in their teens, pass through a special training establishment, and go to sea as engine-room artificers, 5th class, being eligible for promotion with the others.

I shall describe, later, the system of entry and training of officers, with some account of their duties; but it will be convenient here to draw the broad distinction between the military and non-military branches, or, as regards the officers, executive and non-executive. The seamen belong to the military branch, and their officers used to be distinguished by the executive curl, as it was called, on the sleeve of the uniform jacket. The engineer, medical and all other branches were, and are, non-military; and the rings of lace were plain. The distinction between the two is eligibility for command. Thus no engineer or engineer officer or paymaster ever becomes eligible for command of a ship or responsible for her navigation. If all the executive officers are killed or away, command devolves on the senior petty officer. I speak here of the old system, still in force. But a complication has arisen over the new "combined entry" engineer officers, the senior of them now reaching high rank. It is not settled as to whether they will, later, be eligible for admirals' commands at sea.

This has led to a long controversy, and even contest, between the military and non-military branches. Up to twenty

years ago the engineer officers were not allowed to punish their own stokers, and even now they are not entitled, or required, to sit on courts martial; and the same applies to the doctors, paymasters, etc. Gradually powers of punishment for minor offences have been granted to engineer officers; they wear the executive curl, as do the doctors and paymasters; they all have military titles and, of course, rank; but officers of the accountant and medical branches have no powers of punishment. But the distinction between the branches remains to this extent, that the seaman is eligible now for promotion to Admiral-in-Command of the Fleet and a seat on the Board of Admiralty; the stoker can also rise to commissioned rank, but if he reaches that of engineer-admiral he will only be in charge of the machinery of a Fleet, and not of the Fleet itself. Admiral Fisher described this distinction as a relic of feudalism, and, radical as he was, attempted to abolish it. He instituted a system of common entry for all officers, and tried to make all the military and engineering branches interchangeable. But modern Fleet routine is too complicated; specialization is necessary; no engineer officer could possibly have time to master his own job and also become a skilled navigator, and *vice versa*; so the military and non-military distinction is likely to survive as long as there are navies.

It is necessary to touch briefly on the other ratings borne on the ship's books. Except for the marines, to be described presently, most of these are skilled craftsmen. With a rather similar system of entry to that of the engine-room artificers, but without any branch corresponding to the boy-artificers, are a multitude of specialized craftsmen necessary for the upkeep of the modern man-of-war, which must, as far as possible, be a self-contained unit. Thus, under the ship's carpenter, who is a warrant or chief warrant officer, the meaning of which rank I shall explain later, are joiners, shipwrights and plumbers. There are also blacksmiths, who, amongst other duties, look after the chain cable under the boatswain; painters; armourers and ordnance artificers, working under the gunnery-lieutenant, who take care of the guns and gunsights; and electrical artificers, their duties self-explanatory, for whom the torpedo-lieutenant is responsible.

Under the paymaster are the ship's steward and his supply

assistants, who take care of the provisions, and the bakers (for the modern electric bakeries produce excellent fresh bread).

The surgeon-commander has half a dozen sick-berth attendants—a kind of male nurse. The clerical branch, again under the paymaster-commander, is manned by writers. The cook and his mates are now well trained, and the paymaster supervises their work.

Professional messmen look after the catering for the ward-room and gunroom, where the senior and junior officers respectively live, take their meals, and have their being.

Every large ship carries a butcher and his assistant, but these are always privates or corporals of marines who have gone through a short course in preparing carcasses for the galley, or kitchen.

The navigating officer has under him a chief quartermaster and four or five quartermasters, petty officers who have specialized in helmsmanship and keep watch in harbour under the officer of the watch. There is a sailmaker carried even in a modern man-of-war, where there is a good deal of canvas in the way of awnings, deck coverings, not to mention boat sails and canvas targets, to be looked after. Indeed, there is hardly a department of civilian life on shore that is not represented on board ship. But in the smaller ships—the destroyers, submarines and gunboats none of these special craftsmen is carried, with the exception of the engine-room artificers and electricians; many of these various duties are carried out by the coxswain, a senior petty officer who acts as ship's steward or supply officer, as well as master-at-arms. But in captains' commands a master-at-arms, assisted by four or five ship's police, are borne.

The ship's police are chosen from petty officers or able seamen, and their duties are to help in preserving discipline below and above decks. Ship's corporals, to give them their official title, are known as "crushers"; and the sergeant-at-arms, a chief petty officer, is called in sailor's slang the "jaunty".

It will be convenient here to mention the warrant officers, often described as the backbone of the Navy, corresponding to the sergeant-majors in the Army, but of higher rank and with greater privileges and authority. Warrant officers are promoted from petty or chief petty officers; and every branch of the

service contains officers of this rank. Thus the seaman branch has at its head the boatswain, gunner, torpedo-gunner and signal-boatswain.

The boatswain is responsible, under the executive officer, for the anchors, cables, masts, rigging, ship's boats and other similar matters relating to the art of seamanship. In rank between a sub-lieutenant and a midshipman, they serve for a year as acting warrant officers and are then confirmed in the rank by the Admiralty. After about ten years of service, according to the branch concerned, they become commissioned warrant officers, or chief warrant officers as they used to be called, ranking as sub-lieutenants and wearing one stripe of gold lace.

The gunner is responsible, under the gunnery-lieutenant, for the armament, ammunition and magazines; and the torpedo-gunner has corresponding duties with the torpedo armament. The signal-boatswain is the warrant officer of the signalmen; and the carpenter is a warrant officer. Boatswain, gunner and carpenter are very ancient naval ranks and titles; but now, in order to provide advancement for their branches, there are warrant writers, warrant schoolmasters, warrant shipwrights; while the sick-berth attendants become warrant wardmasters, and the cooks and ships' cooks warrant instructors in cookery. The engine-room ratings are eligible for warrant rank. The warrant officers live in their own mess, except in small ships such as destroyers, where the gunner and warrant engineers live in the wardroom. These officers' messes are all aft. On the men's mess-deck, chief petty officers and petty officers have their own messes, divided here between the military and non-military branches; the leading seamen mess with the able and ordinary seamen in what are known as the broadside messes; that is, where the tables are triced up overhead so as to leave the decks clear for action. A leading seaman is in charge of each mess.

Except for an adverse entry in the ship's log, known as "logging", which can be brought up in evidence at a subsequent courtmartial, warrant officers can only be punished by court martial, as in the case of commissioned officers; and they have special privileges of various kinds as befits their rank and station on board ship.

There has been, in recent years, a great multiplication of specialized jobs for seamen, which carry slight extra pay, as the result of successful "passing through" special training classes at the shore schools.

Range-finding, for example, has become a complicated business, owing to the immense ranges at which modern artillery can engage, and the accuracy and skill required. Good range-taking means special aptitude; and the qualified seamen are called range-takers.

The very latest specialist in the Fleet is the cinematograph operator, whose position has recently been regularized by Admiralty order. All the larger warships—cruisers and above—carry their own cinematograph apparatus for the entertainment of the crew. Until now the purchase of "talkie" apparatus for sound films has been delayed for reasons of economy; and, in any case, the purchase-money would come from the canteen funds, a portion of which, representing the rent for the canteens on board ship, is devoted to recreational purposes, some of it going to provide sporting kit, football and cricket equipment, and the like.

Certain of the bluejackets and marines have become expert in working the apparatus and have been paid 1s. a day for carrying out this duty, and they are now to have a regular title and a regular status. As a matter of fact, the cinematograph serves a more serious purpose; for it is found to be useful for recording the results of target practice. The shooting at the towed targets, at long distance, is elaborately organized; for not a round of ammunition must be wasted, and it is necessary to obtain accurate results so as to test the efficiency of the range-finding and the elaborate calculations to find the speed and direction of the target necessary for hitting at long distances. A cinematograph record of the actual fall of the shot is useful here, especially as the big projectiles can be seen in flight, and the "shoot" can afterwards be reproduced for the edification of the control officers and the guns' crews.

I daresay the educational film will find its way to the Fleet in due course. The entertainment committees have recently been embarrassed by the shortage of silent films, as a result of the revolution in the cinematograph world.

Qualified divers are also paid. These are able seamen, leading seamen and petty officers, who have been through a special course of instruction, and who, by regulations, must make a dip, as they call it, once a quarter to keep in practice, under the supervision of the gunner. Every war vessel, of cruiser or larger size, carries diving equipment, with pumps, diving dresses, etc.

There are many occasions in naval life when the divers are needed, such as recovering articles of importance that may have fallen overboard, torpedoes that have failed to rise at the end of their run, cleaning the bottom of the ship, and repairing underwater damage. I remember in China returning from a shooting expedition, and one of my brother officers, attempting to carry two sporting guns up the narrow companion ladder, dropped my valuable and, on that distant station, altogether irreplaceable shotgun overboard. The captain said he had no objection to the divers going down if they would volunteer for the service; which they very readily did, knowing that they would be suitably rewarded. But the mud was so soft that they sank to their waists, and my treasured gun still lies sunk in the Chinese mud.

Diving in shallow water is not at all disagreeable, the only hardship being that smoking is impossible. There have been cases of divers being sent down in a warm climate to scrub the weeds away from the bottom of the ship and being found comfortably asleep, having betrayed their idleness by allowing their wooden scrubbers to float out of their hands and rise to the surface, there to be observed by the officer of the watch.

But diving in deep water, especially where there are strong currents, is a hazardous business and requires very great care. One danger is that of rising suddenly to the surface, when the rapid alteration in pressure fills the blood of the body with minute air bubbles and causes a painful illness known as caisson disease, or "bends", which may prove fatal. When diving below, say, twenty fathoms (120 feet), the diver has to come to the surface by easy stages, with an interval in between. So that if anything goes wrong and he has to come to the surface, it must be done gradually; and yet circumstances may impel a hasty ascent with the probability of serious injury to health. There is much exaggeration about the danger from sharks when diving. I have

never heard of an authentic case of a shark attacking a diver. These sea monsters are savage enough, but extremely cautious, as anyone who has tried to catch them knows; and they steer clear of any unfamiliar moving body, like a diver, on the bottom of the sea. The octopus is a real danger in the tropics, for they grow to a great size and will attack anyone and anything.

I now come to the Royal Marines, a famous corps with great traditions, known to themselves as "Jollys" or "Joeys" and to their shipmates of the seamen's branch as "bullocks" or "leather-necks". A ship-of-the-line—battleship or battle-cruiser is its modern designation—carries one hundred to one hundred and twenty marines, under the command of a captain or major and two lieutenants. A cruiser carries about fifty marines under a lieutenant; and gunboats and sloops eight or ten under a sergeant. Destroyers and submarines carry no members of this famous corps. Marines are entered as adult recruits as for the Army, and sworn in, which, owing to their tender years and tradition, is not the case with the boys entering the Royal Navy; but the marines take an oath of allegiance and fidelity. After training in barracks as infantry and artillerymen, they are sent to sea, there to carry out special duties, some of which are indistinguishable from those of the seamen.

Up to ten years ago there were two separate corps of marines: the Royal Marine Artillery, or Blue Marines (because they wore a blue full-dress uniform), who were given a more intensive training in gunnery; and the Royal Marine Light Infantry, wearing the traditional scarlet jackets, blue trousers with the thin red stripe, and white pipeclay helmets, with, of course, white uniform in the tropics. The Blue Marines wore the white pipeclayed helmets too, and blue trousers with a broad red stripe. Now the two corps have been combined, and are known simply as Royal Marines. This "reform" was considered at the time, and, I believe, rightly, a retrograde step, for it destroyed two fine traditions, though this is not to say that the general tradition of this splendid corps has not been carried on. I am glad to remember that I made a vigorous protest in the House of Commons against the merging of the two corps.

The Royal Marines originated as a separate corps in 1664.

The regiment is one of the few entitled to march through the City of London with fixed bayonets ; and the corps has, I believe, more battle honours on its colours than any other regiment of the Army.

In the Navy of 140 years ago there was much disaffection amongst the seamen, and marines were then drafted to every ship to support authority. Their tradition has it that they remained staunch on all occasions. I shall deal with the great mutinies of this period later, and also with some of the more recent outbreaks of indiscipline in our own and other navies. The marines are still berthed on board ship at the after end of the mess-deck between the officers' quarters and the seamen. Their mess-deck is called the "barracks". They mount sentry over that part of the deck where is situated the keyboard, on which the keys of the magazines and victualling stores are kept, and where the rum is placed after it is drawn by the ships' stewards, all ready for distribution in the midday dinner-hour. They mount sentry over the captain's cabin, are responsible for the after part of the ship between decks, and act as officers' servants and mess waiters. They man a portion of the armament under their own officers, thus in a modern dreadnought usually manning, and being responsible for, the after turret. They are not supposed to be called upon to go aloft, though in the old sailing ships they used to man the main yard and furl or reef the great mainsail when all hands were needed aloft for the sail drill. Their special training as infantry makes them specially useful for landing-parties often needed in the performance of the multitudinous duties of the Royal Navy, especially in the out-of-the-way parts of the world or on the China coast. Marine officers are specially entered and trained ; and, besides looking after their men, perform various duties, such as acting officer of the watch in harbour, and, of course, are in charge of the same part of the armament of the ship as their detachment.

A custom which the marines retain from their Army training is that of never taking off their caps or helmets, whether it is entering the admiral's cabin in a flagship with a message, or when the Articles of War are read on the quarter-deck once in three months, when every other officer and man is uncovered. The

marines have their own depot at Deal, with their own barracks and musketry ranges; though the corps is divided into three parts for manning purposes, one for each of the home ports. The ship's postman is invariably a marine, as are the butchers, as mentioned above; and one or two marines with special pay are detailed for the duty of looking after the ship's lamps.

As I have said, the marines have always been the object of much jesting, most of it undeserved, on board ship. Thus a sailor will call an empty bottle a "dead marine" because it floats upright, the tradition being that a marine's feet are so large that if he falls overboard he will float upright, as his feet weigh him down. The marine's version is that, like the dead marine, the empty bottle has done its duty.

"Tell that to the marines" has passed into our civilian phraseology, the origin of the phrase being that the marine recruits when they came to sea were so green that they would believe any tale they were told. But they are an extremely useful portion of a ship's company, and share in the general life of the Fleet in peace and in war with credit and ability.

Another of Admiral Fisher's attempted reforms was to abolish the Royal Marines as a separate corps; but there was such an outcry afloat and ashore that he had to abandon the idea. Yet there were only two navies in the world which have a marine corps which serves regularly on board ship, our own and the American; and the American Marine Corps is more a colonial force for garrisoning oversea naval bases, for punitive expeditions, and the like. The French Navy has a marine corps which is also in the nature of a colonial army, and which is not sent to sea in detachments as in the case of our own Navy.

What attractions does the naval service hold out for the ratings—the rank and file?

That the service is attractive is proved by the abundance of suitable lads and young men who offer themselves for every branch. As in all other professions, there are advantages and disadvantages. There is an assured career for a young man who is prepared to behave himself and do his duty; while for those of ability and character there is the prospect of advancement and the future possibility of rising to the highest ranks in the service.

But even for those without the ambition or exceptional ability for the higher promotions, there is the certainty of steady employment for twenty-two years and a modest pension at the end of it.

Promotion to petty officer, chief petty officer and warrant officer means practically a life career, with a still better pension. But the time-expired man leaves the service, not only with his pension, but with full rights in unemployment and health insurance; for the Admiralty pays the employer's share into these funds. A good deal of technical skill, in one direction or another, will have been acquired; and in normal times the time-expired petty officer or seaman finds little difficulty in obtaining suitable employment on shore.

There is an opportunity of visiting foreign parts; for with the removal of the German Navy as a menace the Fleet is spending more of its time on foreign stations; and though this may mean tropical discomfort, there is compensation in the interest of visiting strange lands.

Life is strenuous on board ship, and can never be particularly comfortable, for the modern man-of-war is such a "box of tricks", as the sailor calls it, that the living-quarters are bound to be somewhat cramped. On the other hand, much has been achieved, especially in the last twenty years, in improving the comfort of the crews; thus, ample fresh water is available for washing, and there are now bathing arrangements such as were unknown in the older men-of-war. There are ample opportunities for games and sports. There is plenty of leave for well-behaved men, and a seaman or stoker of the right temperament will lead a happy if also strenuous life.

Discipline is strict, and the crew of a modern man-of-war must keep to a very cut-and-dried routine to be efficient. I deal at greater length with the whole question of discipline in the Fleet in a subsequent chapter.

Some men do not, of course, take kindly to discipline, but; although not perfect, there are better means now of having grievances redressed.

The pay, though reduced under the economy drive of 1931, is nevertheless fairly good when it is considered that there is no

unemployment, and when allowance is made for free clothing, quarters and provisions.

The food has improved enormously. Refrigerators, ice-making machines, electric bakeries and much-improved galleys, with skilled cooks, have all added to the material comfort of the crews of His Majesty's ships. The general messing system has meant a greater variety in the menus and better value being obtained from the rations.

Speaking generally, the smaller the ships the happier they are. In the destroyers, submarines and gunboats there are fewer comforts ; but more initiative is left to the men, and there is less parading, drilling and ceremony. In the larger ships conditions vary, according to the officers, petty officers, master-at-arms, and the crews themselves. Ships are known in the Navy as "happy" or "unhappy", and it is largely a matter of luck. Some of the smartest ships are the happiest, and some of the happiest ships are anything but smart. "Smart" in the naval sense means that they are good at target practice and drills, and are clean and efficient. But the happiness or otherwise of a man-of-war depends on a combination of circumstances. The officers, in the various branches, must work together as a team, and the petty officers must act as the effective link between the ratings and the commissioned ranks. The human factor enters, therefore, tremendously into the internal condition of a man-of-war, and the human factor is variable.

The principal disadvantage of a naval career is the inevitable separation for long periods from family life. The custom of matrimony has increased ; and whereas a generation ago it was rare for the younger seamen or stokers to be married, the proportion of married men has now increased considerably. This is the result of altered conditions, better pay, and the stationing of a larger proportion of the Fleet in home waters in the years prior to the Great War. Also the establishment of the naval barracks and the growth of the gunnery and torpedo schools, with the multiplication of "courses", has meant more shore time ; and the result has been more marriages among the younger ratings than was ever dreamt of in the past.

Until the Great War marriage was not officially recognized

by the Admiralty, either for officers or men. Amongst the officers it was definitely discouraged by most flag-officers and captains up to quite recent times. I shall have something to say about married officers and their position in subsequent pages.

One of the few concessions that the Admiralty made to married seamen before the war was that they were allowed to allot a certain proportion of their pay every month by arrangement with the Pay Office. Another concession was introduced just before the Great War, when the men in the home ports were allowed to be paid weekly instead of monthly, this being granted for the convenience of the married men.

I had an interesting experience when commanding a destroyer before the War, our home port being Plymouth. We were detailed for service with the submarines and found ourselves one week-end at Portsmouth, and I was told that we were to draw our pay from the Portsmouth naval barracks. We had to be at sea until Saturday, so I left a petty officer on shore the day before to draw the men's pay, and arranged to pick him up when we returned to port. On counting the money and dividing it up in the pay envelopes and checking it with our pay sheets, I found that the Paymaster's Department at the barracks had given us £20 too much. This was set aside, and I sent an officer on the Monday morning to return the money and point out the mistake. He was chivied from department to department, everyone refusing to have anything to do with him. The pay branch declared that all their accounts were closed, they weren't going to reopen them, and we had made the mistake, not they! It would have been rather too complicated to portion out the extra money, and also we were not quite sure of the legal position. So, after consultation with the coxswain and chief stoker, as representing the lower deck, we decided to add the £20 to our sports fund. We heard nothing more about it, and in due course the money was expended on the needs of our football team.

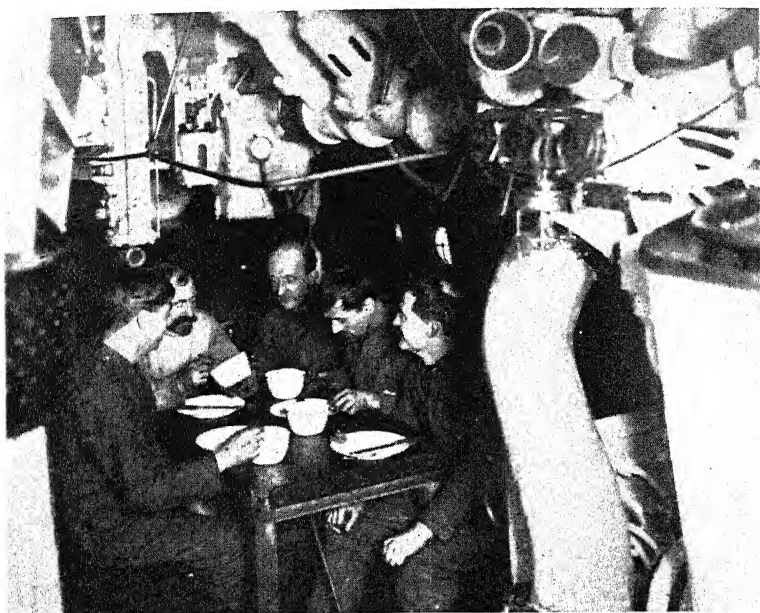
The widow of a seaman killed on duty in peacetime is not, by right, entitled to a pension. Grants are made in cases of hardship as an "indulgence allowance" by the Admiralty. The pensions of officers' widows are small and also in the nature of an indulgence allowance. During the war, when there was an

influx of recruits, many of them married men with responsibilities, the Army had to introduce a marriage allowance for those not married "on the strength", and the Navy followed suit. The marriage allowance for everyone in the naval service, up to and including the warrant officers, is now firmly established; except that men are not supposed to marry before the age of 25. If they do they draw no marriage allowance. But whereas in the Army marriage has been recognized, and in military barracks married quarters are always provided for the privates and non-commissioned officers, the great naval barracks at the three home ports were built before this tardy recognition of the matrimonial state by My Lords Commissioners, and there are no married quarters provided.

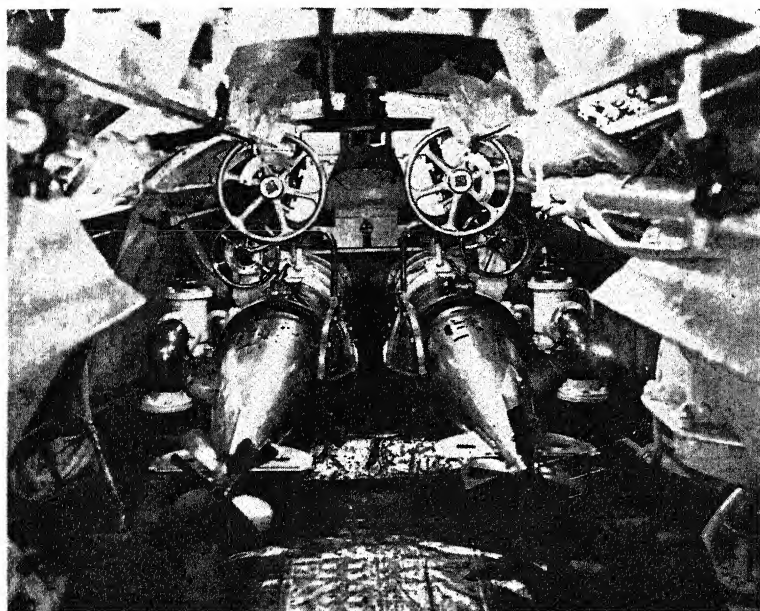
Again, when a regiment proceeds to a foreign station, say to garrison one of our overseas fortresses, "indulgence passages" are provided for the wives and families both of the Army and Air Force. But no troopships, with wives and children, accompany a squadron of warships to distant stations. A few petty officers manage to get their wives out to Malta when they are serving with the Mediterranean Fleet; but this is impossible unless they have private means, and, for that matter, the same applies to the officers, except the wives of the more senior and better paid. Thus a ship commissioned for China for three years means separation from family life for this period of time for her crew. This separation is, however, inevitable in the naval service, and is one of the disadvantages that must be weighed in the balance.

A description of the lower-deck ratings of the Royal Navy would not be complete without some mention of the reserves. It would be false economy to maintain full crews in peacetime for the whole of the ships on the Navy List, but in time of war or national emergency there must be an expansion. For this purpose reservists are maintained.

The time-expired seamen and petty officers used to enter the Coastguard Service, and this was one valuable section of the reserves. But now this important branch comes under the ægis of the Board of Trade, and is a civilian service. Ratings who have completed their twenty-two years' service, and retire!



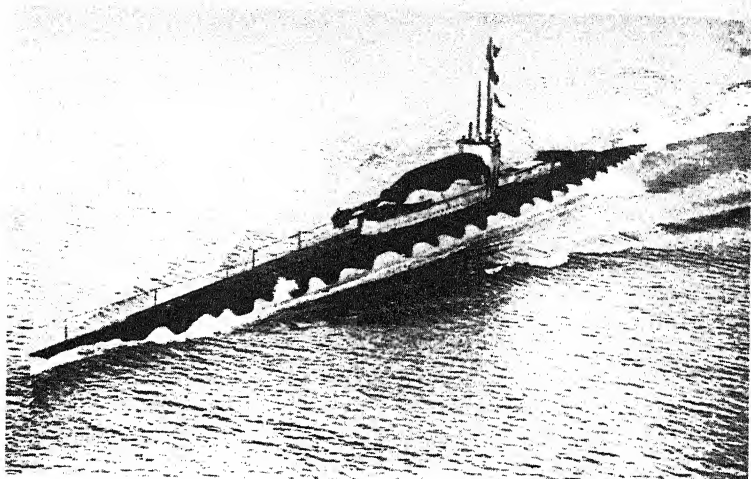
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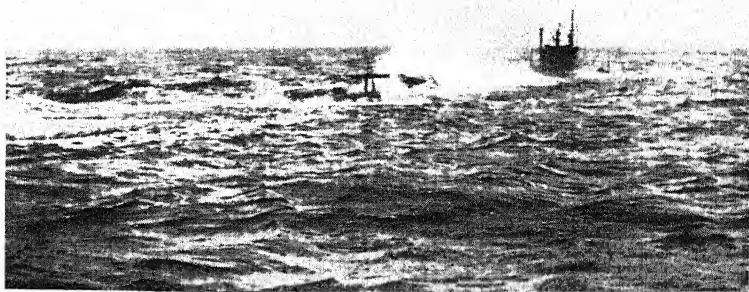
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Above : MESS ROOM IN SUBMARINE

Below : TORPEDOES BEING PLACED IN TUBES IN SUBMARINE



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Above : SUBMARINE M.I. WITH TWELVE-INCH GUN,
AFTERWARDS SUNK AT DIVING PRACTICE

Below : H.M. SUBMARINE E.30 DIVING

on pension, enter the Royal Fleet Reserve and are liable to be called up by Royal Proclamation in time of war or emergency up to the age of 50, or, in some cases, 55.

The special service seamen and stokers referred to already, after serving in the Fleet for five years, engage in the Royal Fleet Reserve for another seven. During this time they put in a week's drill every year at one of the home ports to keep them up to the mark in modern gunnery, torpedo work, and the like.

But it is to the Mercantile Marine that the Navy must look for its principal reserves of man power. A considerable number of the seamen and firemen serving in merchant ships are enrolled in the Royal Naval Reserve, receiving a small annual sum as a retainer, and coming up for training at intervals. The large number of alien and Asiatic seamen engaged in British merchant ships, even in those trading to and from the home ports, is a real source of weakness, for every foreign seaman means one reservist the less. The Navy has always been able, in past campaigns, to draw on the Royal Mercantile Marine for reserves, whether these had been regularly enrolled beforehand or not.

A particularly valuable section is the R.N.R. (T). This is the trawler section and consists of skippers, mates, deckhands, engineers and trimmers of the deep-sea fishing trawlers. They were particularly valuable in the Great War, over 50,000 of them serving in armed trawlers, patrol vessels and minesweepers. Minesweeping was so like their regular fishing operations that they took to it readily and showed much courage and resource; indeed, it is difficult to imagine how the Navy could have got on without them. The conditions of service of the R.N.R. (T) is similar to that of the R.N.R. proper.

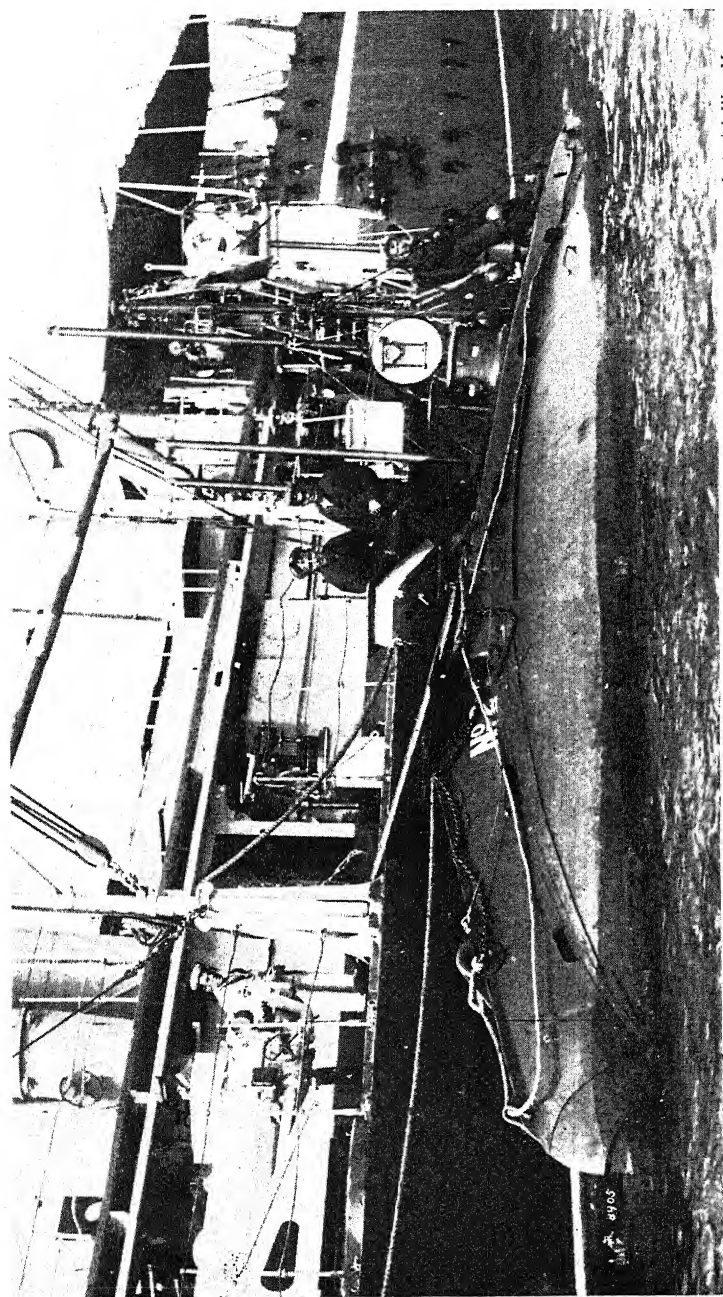
Lastly are the amateur seamen who enrol as officers or men in the Royal Naval Volunteer Reserve, known as the R.N.V.R. Many of them are yachtsmen or the crews of yachts; and they suffered during the War from the ineradicable habit of the Navy of making a joke about everything. They manned hurriedly built motor-launches and other improvised patrol vessels for harbour defence and coastal waters, and played their part in the anti-submarine campaign; but the nickname of "Harry Tate's Navy" has stuck to them ever since. The Royal Naval Divisions

hurriedly formed by Mr. Winston Churchill and thrown into Antwerp in the early days of the Great War, besides a stiffening of marines, mostly consisted of R.N.R. and R.N.V.R. seamen who had not been absorbed into the sea-going ships.

A few words as to uniform. The traditional "square-rig" of the bluejacket is well known all over the world, though in its present form it only dates from 1857. The origin of the blue collar and the black silk handkerchief I have already described; the flowing trousers are so cut because they are more easily rolled up in wet weather, or for scrubbing decks. Up to some fifteen years ago the seamen made all their own clothes, drawing the serge, duck, etc. from the paymaster and cutting it out and making it up themselves, or, as was more often the case, a few skilled seamen of the older school would do it for them for a fee, and make a handsome thing out of it during a commission. "Jewing" is the name given to this form of nautical tailoring. The white cord round the bluejacket's neck is to hold his knife, so that if working aloft there is no danger of it falling out of his hand to reach the deck as a lethal weapon. Now ready-made clothes are issued, though many of the men still prefer to have their own made on board or in the naval ports by tailors on shore, who specialize as seamen's outfitters.

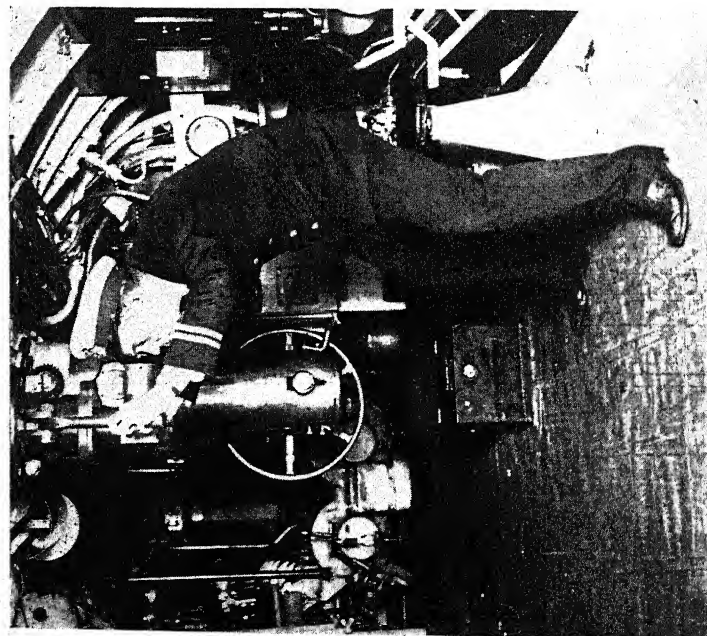
"Hands make and mend clothes" is a polite fiction, and means a half-holiday, with no work done after the dinner-hour. Its origin was an opportunity for the men to cut out and make their clothes. Everything changes in time, however, and now the Admiralty proposes to issue made-to-measure clothing, and I suppose we shall have a regular tailor on board the modern man-of-war.

It may not be generally known that moustaches without beards are forbidden in the Navy, except for the marines. The Royal Marines used to be encouraged to wear moustaches, if they could grow them, but are now permitted to be clean shaven. All other ranks and ratings, from admirals to able seamen, must either be clean shaven or else wear a beard and moustache. Beards have been gradually going out of fashion, which is awkward when special parties have to be sent ashore in Mohammedan countries, where beards give particular prestige. For some

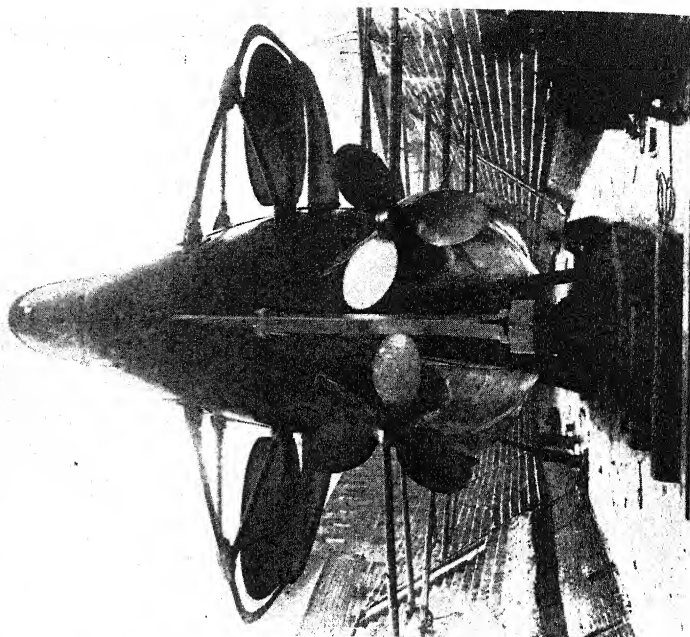


Imperial War Museum

AMERICAN SUBMARINE NO. 2 BOUGHT FOR ROYAL NAVY, ALONGSIDE H.M.S. "HAZARD"; ONE OF EARLIEST SUBMARINES AND OLD TYPE TORPEDO-GUNBOAT



[Imperial War Museum]
LIEUTENANT IN SUBMARINE USING PERISCOPE



[Imperial War Museum]
H.M. SUBMARINE E-31 IN DRY DOCK, SHOWING VERTICAL
AND HORIZONTAL FINES AND PROPELLERS

reason the torpedomen used to affect beards more than other branches; and the stokers were usually clean shaven, for the obvious reason that it was easier to wash the coaldust from their faces if they had no beards. In my early days naval officers wore sidewhiskers long after they had gone out of fashion amongst their contemporaries at home.

I served with one midshipman who was the proud possessor of a beard, but he changed his mind after a time, shaved it off, and then asked permission of the first-lieutenant to grow it again. The first-lieutenant told him to grow a beard, or a tail, or anything else he liked.

A word as to the naval badges. On the left arm are worn the badges of rank; on the right arm those indicating a qualification, and called non-substantive. The leading seaman wears a single anchor worked in gold wire on his best clothes ("number ones"), in red silk on his working clothes ("number threes"), and in blue silk on his white duck uniform.

Petty officers wear two crossed anchors on the left arm with a crown above. Below these badges are the good-conduct badges, narrow strips or chevrons of gold, red or blue, corresponding to the badges of rank, three being the maximum that can be awarded.

On the right arm are the badges of qualification. Thus the seaman-gunner wears a cannon with a star above it; and the seaman-torpedoman a torpedo with a star. A gunner's mate wears two crossed guns with a star above and below and a crown on top of all; and the torpedo-gunner's mate a similar badge with torpedoes taking the place of guns.

Every stoker wears an emblem like a ship's propeller; and a telegraphist the wings of Mercury with a shaft of lightning through them. The signalman wears a little flag, and a yeoman of signals crossed flags with stars and crown like the gunner's and torpedo-gunner's mates.

The privilege of wearing plain clothes on shore has in recent years been permitted to petty officers and ratings of good conduct. All officers and warrant officers carry swords on ceremonial occasions, but the only rating in the ship privileged to carry a sword is the master-at-arms, although he only ranks as a chief

petty officer. Marines carry their bayonets when on duty or on leave.

Sub-lieutenants, mates (old style), and commissioned warrant officers wear one broad gold stripe. Lieutenants two stripes; lieutenant-commanders three stripes, the middle one being narrow. Commanders wear three stripes, captains four, commodores one very wide gold stripe. A rear-admiral wears a gold stripe above the broad gold band, a vice-admiral two, and an admiral three stripes in addition to the flag-officer's gold band. With white uniform the badges of rank are worn on the shoulder-straps.

CHAPTER VI

THE NAVAL OFFICER OF TO-DAY

System of entry—The old *Britannia*—Dartmouth College—Direct entry—Comparison with Dartmouth system—Midshipmen—Duties and training—Commissioned rank—Specialization—Promotion—Present stagnation—Its effects—Promotion from lower deck—Flag officers—Common-entry system for engineering and military branches—Paymaster branch—Modern staffs—Increase of paper work—Medical and Instructor branches—Discipline of officers—Marriage in the Navy—Admiralty's attitude towards matrimony—Marriage allowances.

THERE are as many methods of entering officers for the various branches of the Royal Navy as for the ratings described in the last chapter. That is to say, there is a different system in operation for each branch of the service. This is unavoidable. It works well enough in practice, and, generally speaking, the various grades and branches of officers work harmoniously together. This was not always the case.

To take the executive branch first, there has been, since Admiral Fisher's reforms in 1906, a reversion to the old idea of "catching 'em young". Up to some sixty years ago, officers, chosen largely through influence and nomination, went to sea as midshipmen or cadets at the age of thirteen and fourteen. In Nelson's time they went to sea at the age of about twelve to fifteen. Then the *Britannia* training ship was established at Dartmouth, not to be abolished until 1906, on the completion of the Royal Naval College on shore at the same port. All the senior officers of the Navy to-day passed through the *Britannia*, and a brief description of the training will, therefore, not be out of place.

Two hulks, the *Britannia* and *Hindustan*, old wooden three-deckers, were moored in Dartmouth harbour with a floating

bridge connecting them, and hither, after a successful examination and a very stiff medical test, the cadets were drafted to be licked into shape. Candidates for cadetships had to receive a nomination from a Member of Parliament, Lord Lieutenant, or other person of position, and they then sat for a competitive examination conducted by the Civil Service Commissioners. Three to four hundred sat three times a year, and between forty and fifty were taken on each occasion, so that the competition was pretty stiff. The successful candidates, with the rank of naval cadet, joined the training ship between the ages of $14\frac{1}{2}$ and $15\frac{1}{2}$ and served in her for just eighteen months.

There were playing fields and gymnasiums on shore, and a couple of sea-going tenders—sloops with masts and yards and auxiliary engines—in which short cruises of about a week at a time were taken. A destroyer now serves this purpose. After a passing-out examination the seniors then joined ships of the Fleet as sea-going cadets, and after three or four months at sea were promoted to midshipmen. After serving at sea as midshipmen ("snotties" in the vernacular) for three and a half years, and now having reached the age of 19 or 20, they passed a qualifying examination in seamanship for lieutenant, were promoted acting sub-lieutenants, and began their courses in torpedo, gunnery, seamanship and navigation. The training of acting sub-lieutenants has been little altered. The navigation and mathematical classes were, and are, held at the Royal Naval College at Greenwich; there was, and is, a course in pilotage at the old Royal Naval College, now called the Navigation School, at Portsmouth. The acting sub-lieutenants study gunnery and infantry drill at Whale Island, officially H.M.S. *Excellent*, the famous naval gunnery establishment also at Portsmouth. And the *Vernon* sees them through their studies in torpedo, mining and wireless telegraphy.

After a year of instruction of this kind on shore, and having passed their examinations, they go again to sea as sub-lieutenants for another year or two, according to the marks obtained in these examinations, and then become fully fledged lieutenants.

The first change, after many years of this routine, was in 1902, when a second-class protected cruiser, the *Isis*, was specially

commissioned as a cadet-training ship, and took the fourth-term cadets from the *Britannia* to sea for three months' cruising in the Mediterranean and elsewhere.

During the years at the beginning of this century the Royal Naval College was being built on shore; and as this coincided with my time in the *Britannia*, I may mention that my two most vivid recollections of the college were the laying of the foundation stone by King Edward VII (when I was one of his special Guard of Honour on account of my height), and the Sunday afternoon amusement of sending the trucks on the special railway (which carried the Portland stone from barges in the river up to the site on the top of the hill) careering downwards into the harbour. We were not popular with the contractor.

We slept in hammocks, kept our clothes in sea-chests, shared a retired marine servant between four of us, and spent a strenuous but happy time in the two old wooden three-deckers.

The new system of training introduced with the completion of the college consisted in entering cadets at the age of 13 to 13½. There is a written qualifying examination, but the chief method of selection is by interviewing before a selection committee, consisting of two or three senior naval officers, and a naval instructor, under the chairmanship of an admiral. The idea is to judge of the character and future promise of the young aspirants, after which they sit for the qualifying examination. The system has been much criticized, principally on the grounds that it is often difficult to tell the future capabilities of a lad of these tender years.

Another criticism is that their general education has not progressed very far at this age, and the taxpayers have to help pay to make up this deficiency. For though the fees paid by the parents are high, the sum-total of these does not cover the cost of the college.

A new college was built at Osborne in the Isle of Wight also, the first two years under the new system being spent there, and the last two years at Dartmouth Naval College. Thus four years was substituted for eighteen months in the *Britannia*, and a sea-going cadet actually joins a sea-going ship a little later under the new system.

The Osborne College was found to be unhealthy and was abandoned; and now the whole of the training is done at Dartmouth College. The parents have to find £160 a year in fees; and extras may come to another £30 or £40 a year, so that this method of entry is barred to all except the children of the well-to-do, with the exceptions cited below.

In the college there is a division of responsibility for the welfare and training of the cadets between the naval officers and the schoolmasters, and what with these two sections of officials the cadets get little chance of developing initiative. They are given a tremendous amount of instruction, technical and scholastic, and much drilling and supervision, so that they go to sea well crammed but a little dazed, and it usually takes six months for the newly joined youngsters in a sea-going ship to begin to use their own intelligences.

There is a certain amount of weeding out of cadets during this training, as is inevitable, owing to the early entry; and in recent years a good many wealthy parents have sent their sons into the Navy, deliberately, for a few years, with the intention of removing them afterwards, rather as the scions of other wealthy families enter certain fashionable regiments with no intention of making the Army their life's career.

A few cadetships are given to the sons of officers killed on active service, or in other special circumstances, with either reduced fees or no fees at all. Yet, as I have stated, the full fees paid do not cover the cost of the establishment, the remainder being borne by the Treasury, which means the taxpayers. The taxpayers' share in 1931 was £118,000.

Another of Admiral Fisher's reforms was the attempted merging of the engineering and executive branches and the interchangeability of duties. This has been attempted also in the United States Navy, but with not altogether successful results; and it has been gradually abandoned in our own. The abandonment refers to the interchangeability. Nowadays an officer specializing in engineering remains in that branch for the whole of his after career, and, though the matter is not finally settled, executive command as an admiral will probably be outside his reach; but as none of the Dartmouth College cadets have yet

reached this age or seniority, it is impossible to prophesy what the future will bring.

Owing to the rapid expansion of the Navy in the pre-war years and the need of increasing the number of officers, another system was introduced, parallel with the Osborne-Dartmouth scheme. It was a good thing for the Navy, as it enabled a useful comparison of results to be made. This parallel system is the direct entry of boys from the public and grammar schools at the age of 18. They are given eighteen months' training in a dreadnought battleship, the *Thunderer*, converted into a special training ship, and then join the Fleet as midshipmen, ranking in every way and performing the same duties as the Dartmouth products.

The general consensus of opinion amongst naval officers, both during and after the war, has been, and is, that the "direct-entry" system on the whole is more satisfactory than the Dartmouth system. It is certainly cheaper, and it also opens a wider avenue of entry. After a few months at sea there is little practical difference in *technical* knowledge between the ex-public schoolboys and the ex-Dartmouth cadets, while from then onwards the ex-public schoolboys, owing to better physique, through being older, with more knowledge of the world and a wider outlook, become in the majority of cases rather more promising officers than their comrades from Dartmouth. I believe most experienced officers will agree that the power of command, the art of leadership, is more developed after a year or two in the "direct-entry" midshipmen, even though they may lack some of the traditional naval spirit. I must be understood here as making only a very general statement; but it will be borne out by the majority of naval officers, and there is a growing movement in the Navy, which I believe has now spread to the Admiralty, to raise the age of entry at Dartmouth and to try to combine the advantages of both systems by shortening the period of training.

A certain number of the "direct-entry" cadets are allowed to volunteer for engineering straight away, and this is one means of recruiting the corps of naval engineer officers.

But to return to our midshipmen and the life they lead in a man-of-war. Fifteen to twenty of these young officers are accommodated in the gunroom of a battleship or large cruiser,

which they share with the sub-lieutenants, the senior of whom is president, the paymaster-cadets, paymaster sub-lieutenants and other junior officers. They sleep in hammocks and keep their clothes in square-lidded sea-chests which have been the regulation article of kit for junior officers in the Royal Navy for nearly a hundred years. Two or three of them share a marine or bandsman servant, and they continue their instruction under a naval instructor-lieutenant (or a chaplain, who frequently combines the two duties), performing various functions on board ship, such as being put in charge of rowing, sailing and steamboats, and acting as A.D.C. to the executive officer or as assistant to the divisional lieutenants. The seamen, who are divided into four, or in some cases three, divisions, are in charge of a lieutenant for each division who corresponds to the captain of a company in a battalion of the Army, and he has one or two midshipmen under him who correspond to the subalterns of a regiment; and then there is a midshipman of the watch at sea and in harbour. One of the sea duties is to make cocoa for the officer of the watch on cold nights.

Senior midshipmen are lent for service in destroyers and submarines for three or four months at a time, and during all this period they are learning seamanship and the duties of a naval officer. One of them is detailed for duty as assistant to the navigating lieutenant and is known as the "tankey", because the navigating officer is by ancient custom responsible for the ship's drinking tanks, and this part of his duty usually devolves upon his midshipman assistant.

The captain has an A.D.C. when the ship is at general action stations, or entering or leaving harbour, known as the "captain's doggie", and this officer sometimes needs to be a diplomat, as in the case of the young gentleman the captain sent to tell the first-lieutenant working the cables, when something had gone wrong, that "he wasn't fit to be in charge of a whelk-stall". The young officer reported the message thus: "Please sir, the captain's compliments, and will you please inform him of the cause of the delay?" "Tell the captain," replied Number One, as the first-lieutenant is called, "to go and eat his hat"; which message was duly transmitted as, "Please sir, the first-lieutenant reports that the matter will be righted shortly."

A great tradition has been built up round the rank of midshipman. Originally the title of a petty officer, it was transferred to the young gentlemen who went to sea in the early days without any special training but with, if they were lucky, plenty of influence behind them.

There was a midshipman who had an altercation with the gunner, a warrant officer of long service, in the course of which he told the gunner that he wasn't fit to carry guts to a bear. On this being reported, the captain reprimanded the midshipman, and ordered him to apologize, which he did by informing the gunner that he had meant to say that he *was* fit to carry guts to a bear.

In the early years of this century, when I was serving in the *Glory*, the flagship of the China squadron, one of our ships, the battleship *Centurion*, carried a batch of midshipmen who frequently incurred the displeasure of her commanding officer, Commander Fremantle, now Admiral Sir Sidney Fremantle. One Saturday he ordered a dozen of them up to the foretop, the traditional punishment of mastheading, when a young officer would be sent to cool his heels aloft until he had expiated his offence. Our flag-captain, the Hon. Guy Stopford, noticed this huddled group of white-clad figures, for we were in the tropics, and signalled over to the *Centurion*, "captain to captain", by semaphore, "What are those lilies growing in your foretop?" In a few minutes the reply came back, captain to captain: "See St. Matthew, Chapter vi, verse 28." Sending for a Bible, our captain looked it up, to read these words: "Consider the lilies of the field, how they grow; they toil not, neither do they spin."

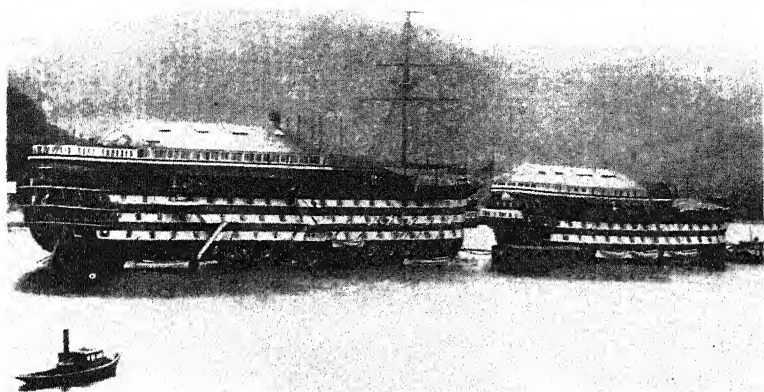
There used to be a good deal of bullying in the gunrooms in the old days, much of it wanton and unnecessary, and there were one or two unsavoury scandals. The sub-lieutenant had, and indeed has, the right, *sub rosa*, to chastise offending junior midshipmen with a dirk scabbard, and he will attempt it sometimes on senior midshipmen if these are not too athletic and determined. In certain cases he will call the junior midshipmen to his aid to overpower the stalwart offender, the word of command being, "Dogs of war at him", the said dogs of war being the juniors, not at all averse to tackling one of the dreaded seniors.

Many of the old-fashioned gunrooms were below the main deck, badly ventilated and cramped for space. One of my earliest experiences was spending the whole of my watch below at sea stationed at a scuttle or porthole. As the ship rolled and lifted that side where the gunroom was out of the water, I had to unscrew the butterfly nuts and swing open the scuttle to let in a draught of cool fresh air, again hurriedly closing it and screwing it tight as the wallowing battleship submerged our side again in the ocean. A very tiring business when prolonged.

After three and a half years midshipmen present themselves before an examining board of captains for the dreaded seamanship examination. This is almost entirely *viva voce*, and includes the greater part of an entire day spent in searching cross-examination and sometimes practical demonstrations such as exhibitions of rigging, and so on, on the upper deck. Some of the captains were holy terrors, and one of them in my squadron laid it down as a guiding principle that, as no midshipman was ever worth a first-class certificate, he never intended to give one. Certificates are first, second, and third; and until the seamanship examination is passed no further promotion can take place.

Sub-lieutenants have to pass subsequently in seamanship, navigation, gunnery, torpedo and engineering, as previously explained, and first-class certificates in all of these means early promotion and a good mark against one's name in the Admiralty records. But, the seamanship examination safely passed, our midshipman drops the white patches from his monkey-jacket, dons his distinguishing marks on his officer's coat with the single gold stripe of a sub-lieutenant on the sleeve, exchanges his dirk for a sword and his cap for a cocked hat. He is now an acting commissioned officer, and, after a few months more at sea, is sent to the Royal Naval College at Greenwich for navigation, and from thence to the engineering, gunnery and torpedo schools. Between a year and two and a half years afterwards, according to his passing-out marks, he becomes a lieutenant, and continues at sea as a watch-keeping officer for two or three years more, when he has a chance of specializing.

Specializing means that he takes up the branch of gunnery, torpedo, navigation, signals or engineering, or obtains entry



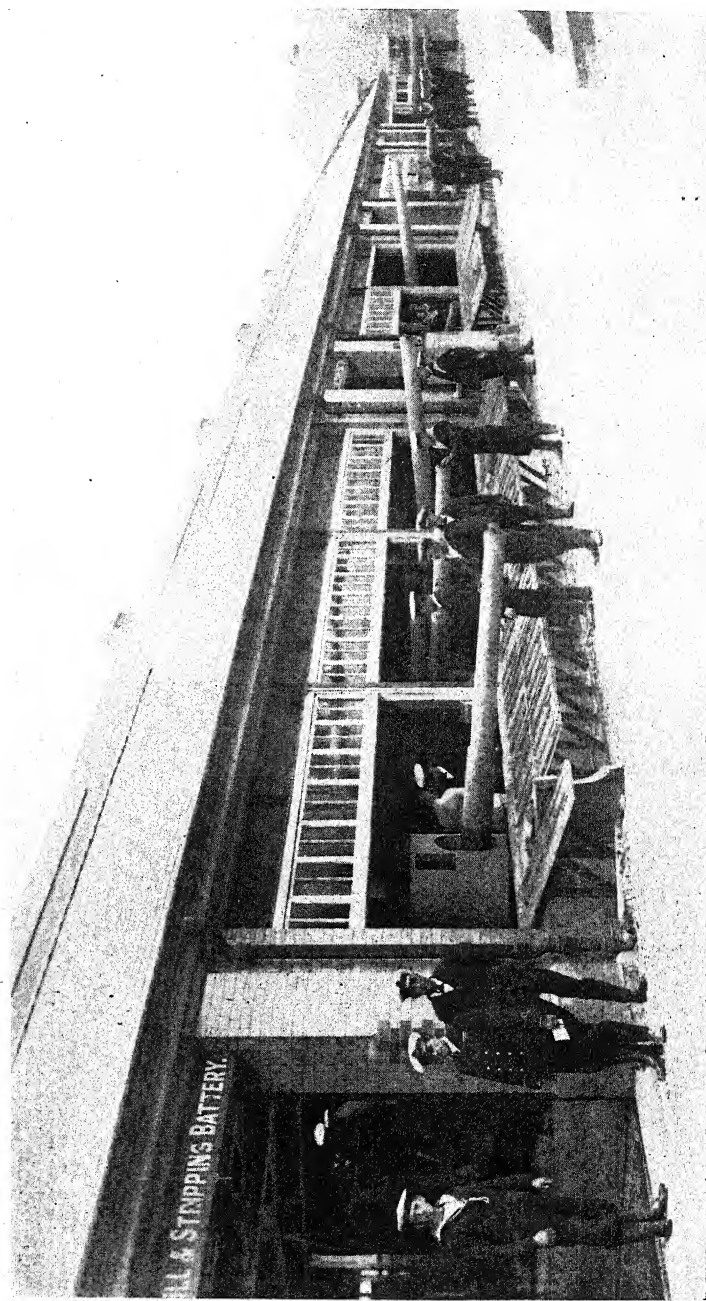
[Imperial War Museum]

H.M.S. "BRITANNIA" AND "HINDUSTAN": TRAINING SHIPS FOR NAVAL CADETS



[Imperial War Museum]

ROYAL NAVAL COLLEGE, DARTMOUTH, WHICH HAS REPLACED TRAINING SHIPS



DEVONPORT GUNNERY SCHOOL : ON LEFT, PETTY OFFICER, MATH, AND CHIEF PETTY OFFICER

[Abrahams, Devonport]

to the staff college ; or else decides to do none of these things but to remain a non-specialized officer or "salt horse", as those who devote themselves primarily to seamanship are called ; and to hope for advancement by entering the destroyer or submarine service and, later, obtaining commands of sloops and gunboats.

The multiplication of specialized branches has been brought about by the complexity of modern naval equipment. The diabolical invention of poison gas, for example, has created a new problem in naval attack and defence, and we shall soon have gas specialists and anti-poison-gas specialists if this process of making experts continues. The submarine demands specializing, again, for the officers who are to command and serve in this branch of the service ; while naval aviation provides yet another specialized section.

The naval air service dates from before the war, and has had a varied history. Frowned on at first as an innovation by the Admiralty, and unofficially cold-shouldered, the penalty was paid by its absorption later into the Royal Air Force. The Air Ministry and a separate Air Force sprang out of the practical requirements of war ; but, as soon as peace came, the Admiralty and War Office joined in an unholy alliance to destroy the new service and cut up its estate between them.

The attempt was foiled, and will hardly be seriously made again ; but, as a compromise, the naval wing has been re-established, and over this the Admiralty exercises a considerable degree of control. Young lieutenants are allowed to volunteer to specialize as pilots or observers, and their service corresponds, broadly speaking, to that of the other three-dimensional branch of specialized warfare, the submarines. The Navy is in a transitional stage as regards its naval wing, for a certain number of the pilots and observers are Royal Air Force personnel lent to men-of-war in the same way that marine officers are sent to sea with their detachments. The eventual development will probably be that all the naval flying from on board ship will be carried out by naval officers, petty officers and other ratings trained for the purpose.

Yet another specialized branch, though not yet a separate section of the military branch, is the submarine service. From

all these branches officers qualify for promotion to commanders, when they may either continue in their specialized branches, doing staff work and so on, or become executive officers of the larger warships or command the smaller. On promotion to captain most officers drop specialized work and are eligible for command. Specialization, except in engineering (and even here there is still some uncertainty), does not debar from promotion to the higher ranks, including flag rank and command of Fleets.

It has, indeed, been looked upon as facilitating such promotion. There is an intermediate rank between lieutenant and commander, that of lieutenant-commander, promotion to which is automatic after eight years' service as lieutenant, when $2\frac{1}{2}$ stripes of gold lace are worn on the sleeve instead of the lieutenant's two.

After between four and seven years' service as lieutenant-commander, promotion is made by selection to the rank of commander; and this is the most difficult stile to cross in the naval officer's career. After every great war there has always been a block in promotion in the Navy; and the officers of the Fleet are passing through such a period of stagnation even now.

Various voluntary retirement schemes were brought in after the war to encourage as many as possible of the redundant officers of all ranks to leave the service with bonuses or enhanced pensions; and two big batches of officers were subsequently "axed" compulsorily—that is, they were retired on pension, before their time, willy-nilly. Even so, there is a block in promotion, and less than 25 per cent. of the lieutenant-commanders afloat to-day can expect ever to receive the three rings and the gold oak leaves round the cap which mark the rank of commander.

Those who miss their promotion are allowed to retire voluntarily at the age of 40, after about nineteen years' commissioned service; and at 45 retirements for those not promoted to commander is compulsory with a moderate pension. All these retired officers are liable to be called up in case of war or national emergency until they reach the age of 55—or later in the case of the senior ranks.

The commanders are usually promoted between the ages of 33 and 37, and six to ten years later are promoted, again by selection,

to captain. The captain wears four stripes, and a few senior captains, acting in special capacities, receive the temporary rank of commodore, with one broad stripe.

Promotion to rear-admiral is partly by seniority, partly by selection; the selection depending on sea time put in, which again depends on the appointments received from the Admiralty. A certain minimum period of sea time is necessary for all officers to qualify for their promotion to the next step; and with a smaller number of sea-going ships in commission it is not always easy for this qualifying period to be served. Officers not employed, of any rank, are placed on half-pay; though half-pay is rare below the rank of lieutenant-commander.

The stagnation in promotion, though inevitable with the reduced Fleet, has certain evil results. An officer who is reaching the promotion zone in any rank knows then that the least slip or mistake, or any action which incurs the displeasure of his commanding officer, flag-officer, or the Admiralty itself, will mean, in most cases automatically, his being passed over. And then will have come the end of his career, although he is still in the prime of life according to shore people's ideas. This has the effect of making most officers too careful, and destroys initiative.

It is a sad fact that in the past many of the most progressive officers, the protagonists of new ideas and reforms, have been looked on askance by the powers that be and passed over because of their very merits. The sedate, careful, unimaginative type who rarely makes mistakes because he hardly ever tries to do anything out of the ordinary has nearly always stood the best chance of promotion in the Navy; and many a capable officer has been passed over, to the loss of the service. One of the worst cases was that of Captain Cole, the designer of the ill-fated *Captain*, the first true ironclad built for the purpose in the Royal Navy. It was not his fault that his ship capsized in a squall, because the Admiralty of the day insisted on overloading her with masts and sails, for which the design of the ship was quite unsuited. But before this he had been "put on the beach", as naval officers say, and would never have had any chance of further employment, still less of his ideas being accepted, except for Parliamentary and public agitation. Many people, both in and out of the naval

service at that time, had become alarmed at the slow progress being made with new designs by a Board of Admiralty which behaved as though it were oblivious to the products of the modern engineer and inventor. And then an agitation finally stimulated their lordships into activity.

"Influence" has always played a considerable part in the selection of officers for promotion, or for such employment as ordinarily leads to promotion; and one of the surest ways of reaching high rank in the service was, and, I fear, still is, to marry the daughter of a successful admiral or to be born the son of a politician who becomes a cabinet minister. There is also a great deal of luck about promotion by selection, such as being in the right place at the right time, or serving with a rising captain and winning his confidence, afterwards repaid by recommendations for promotion when the patron has reached the Flag List. One thing that the public generally, who know not the inner life of the Navy, should realize, is that non-promotion and retirement at a comparatively early age, in the vast majority of cases, means no sort of stigma, but is simply the penalty paid for duty done to the country in a service in which the plums are few and hard to come by. And in case the reader may suppose that I myself am one of those passed over, may I be allowed one word of personal explanation in stating that I retired voluntarily to enter Parliament just before entering the promotion zone of my rank?

I referred in the last chapter, when dealing with the opportunities for promotion of petty officers and men from the lower deck to commissioned rank, to the apparent failure of the mate scheme, now abandoned. It is a fact that, of the ex-mates who afterwards reached high commissioned rank, and who were chosen before the war and during it, a disproportionately small percentage made further advancement in the service. Whether this was due to prejudice or mistaken policy, the fact remains that the abilities of these gentlemen, many of whom possessed them to a very high degree, were far too rarely recognized by My Lords Commissioners.

One of the complaints of the lieutenants and lieutenant-commanders, ex-mate, which I think were justified, was their non-selection for the specialized courses and their non-employment

in command of small ships. This meant that their chances of promotion were lessened. However, a new start has been made now; the promoted petty officers and other ratings become sub-lieutenants, and, it is to be hoped, will stand a fair chance with the products of Dartmouth and of "direct entry" from the public schools.

From time to time, when the Navy has been short of officers, Royal Naval Reserve lieutenants have been given regular commissions on the understanding that they would not be promoted beyond the rank of commander; actually a few were so promoted for good service, and one of them reached flag rank. Once promoted to rear-admiral, further promotion on the Flag List depends on employment afloat, which means, in practice, selection for command by the Board of Admiralty, though partly also it depends on age. For flag-officers must retire compulsorily at the age of sixty. Seniority, the head of the rear-admirals' list, with the necessary sea time "in", means automatic promotion to vice-admiral as vacancies occur through voluntary retirement, death, or the promotion of the vice-admirals to full admiral.

At the top of the Flag List are the Admirals of the Fleet, the statutory number of which is three; though during the war the number of Admirals of the Fleet was increased to six. The "full" admirals serve in command of the principal Fleets, or as commander-in-chief of one of the three home ports, or on the Board of Admiralty. Vice-admirals command the smaller Fleets on foreign stations; though there are few posts for rear-admirals abroad also. Rear-admirals also serve in command of squadrons of a Fleet; while every cruiser and every battleship and battle-cruiser is commanded by a captain, or post-captain as he is called colloquially in the Navy.

Sloops, gunboats, destroyers, and the larger submarines are commanded by commanders or senior lieutenant-commanders.

Every battleship, in addition to the captain, who lives by himself and has his own quarters and is practically an autocrat, has a second-in-command who is the executive officer. He is practically general manager of the ship.

In addition, the navigating officer is frequently a commander;

the senior medical officer is a surgeon-commander; an engineer-commander (old style, or commander [E] new style) is in charge of the engine-room and machinery; and a paymaster-commander is in charge of accountancy, pay, stores, victualling, etc.

There will be four or even more lieutenant-commanders of the military branch, the senior of which is first-lieutenant; and in a dreadnought the others will be gunnery-lieutenant, torpedo-lieutenant, and one or two for general duties. Six to eight lieutenants will be carried, one usually being assistant to the gunnery-officer, one in charge of physical training and the education of midshipmen and seamen, and the others to serve as officer of the watch at sea, or in harbour, and in charge of the seamen divisions. There may be one or two lieutenants or lieutenant-commanders R.N.R., putting in their periodical training, and carrying out the general duties of their rank. These are all of the military branch.

The engineer-commander will have four or five officers of lieutenant-commander or lieutenant's rank to assist him; and the marine detachment will be commanded by a captain or major with one or two lieutenants. There will be three or four sub-lieutenants or acting sub-lieutenants; and fifteen to twenty midshipmen or naval cadets. These, together with five or six warrant officers, gunner, boatswain and torpedo-gunner will be the complement of a dreadnought battleship or battle-cruiser on the military side.

The present senior engineer officers entered the service through the Royal Naval Engineering College at Keyham, afterwards proceeding to sea as assistant engineers, who would now be called engineer sub-lieutenants, and graduating through the various ranks. When military titles were bestowed on the engineering branch of the Navy the engineers became engineer-lieutenants; the senior engineers, or staff engineers, lieutenant-commanders; and the chief engineers engineer-commanders. Fleet engineers became captains; and inspectors of machinery rear-admirals. The engineer-commander, or commander (E) when that rank is reached, is still, and I presume always will be, called "The Chief".

With the common system of entry the officers, afterwards to

become lieutenants (E), entered Osborne and passed through Dartmouth to sea as midshipmen; and then were allowed to volunteer for the engineering branch, proceeding to Keyham College for three and a half years. The corps of naval engineer officers has also been augmented, and will be in the future, by promotion from the engine-room artificers, much in the same way as selected petty officers become sub-lieutenants under the new scheme.

The paymaster branch is recruited by competitive examination. The successful young gentlemen undergo a short course of instruction, then going to sea as paymaster-cadets, presently to be promoted to paymaster-midshipmen, and so on high up the hierarchy with military titles, but without executive rank.

This branch, in addition to supervising the issue of pay, clothing and provisions, and the cooking and messing of the ship's company, also performs important duties as secretaries to flag-officers. Every admiral has a personal staff consisting of his secretary, usually a paymaster-commander, or paymaster-lieutenant-commander, and a flag-lieutenant. The captain of the ship is known as his flag-captain, and these and the remainder of his personal staff mess with the admiral in his after-cabin.

But this is not the end of an admiral's staff; and it has grown very much in recent years.

When I served in the flagship of the China squadron, as a midshipman under the late Vice-Admiral Sir Gerald Uctred Noel, one of the most distinguished naval officers of his day, he had under his command a squadron of nearly a hundred vessels. The political situation in the Far East was unsettled, we were in alliance with Japan, the Boxer Rebellion was just over, and the Russo-Japanese war beginning. In addition to a fleet of battle-ships, the second largest in commission, we had a large squadron of armoured and protected cruisers, and many sloops, gunboats, destroyers and surveying vessels, bringing up the total to a very large command. For months at a time we were on a war footing; and yet the commander-in-chief's staff consisted of his flag-captain, a flag-commander, responsible for the war staff duties, a flag-lieutenant responsible for the signalling of the Fleet, including the wireless—then in its infancy—and his secretary, who had

two or three junior officers of the paymaster branch as his assistants. This was his total staff; and even the flag-commander was a recent innovation.

Now compare the Atlantic Fleet to-day, actually smaller in numbers than the China squadron of twenty-eight years ago. The commander-in-chief's personal staff consists of his secretary, flag-lieutenant, and a senior captain as chief of staff, who has his own secretary. There is a Captain of the Fleet, a post-captain formerly of the navigating branch, responsible for the moorings and ordering of the Fleet, who has his own secretary. There are five commanders, and two lieutenant-commanders, for various staff duties. Two engineer-captains and an engineer-lieutenant-commander serve on the admiral's staff for the supervision of the machinery of the Fleet; an instructor-commander acts as Fleet Education Officer, a paymaster-captain is in charge of the accounts of the Fleet, and a senior Royal Air Force officer is borne for aviation. Two surgeon-commanders look after the health of the Fleet; and so large is this staff that half of them have to be accommodated in other ships of the battle squadron; for there simply is not room for them all, even in an immense superdreadnought like the *Nelson*. For all these staff officers are in addition to the serving officers of the ship. Indeed, the complaint is that there are too many staff officers for efficiency; and no wonder. Certainly one result has been an enormous increase in paper work, and it is a grievance amongst commanding officers of warships to-day, large and small, that far too much of their time is taken up in filling in forms, making returns and writing reports.

The medical branch is recruited from qualified surgeons, and they are entitled to military titles, being called surgeon-lieutenant, surgeon-commander, etc. A battleship usually carries a surgeon-commander with a couple of surgeon-lieutenants to assist him, and a cruiser one surgeon-lieutenant-commander.

From time to time the British Medical Association comes into conflict with the Admiralty over the pay, pensions and conditions of service of surgeons in the Navy, and has several times enforced advantages for their members by advising medical students not to enter the Royal Navy until these grievances are redressed.

The profession of engineering has also had one or two bouts in the past with the Admiralty, and at one time there was something like a boycott by engineering students against entering Keyham. Indeed, the common-entry system is believed to have been a partial answer to these periodical examples of direct action, introduced for the purpose by Admiral Lord Fisher.

Large ships carry an instructor-lieutenant, or a chaplain qualified as naval instructor, for teaching the midshipmen higher mathematics and nautical astronomy; and a few ordnance officers and naval constructors are always afloat putting in their sea time and ranking as lieutenant during this period. There is also a schoolmaster branch, with commissioned-warrant and warrant officers, for the instruction of seamen, stokers and boys; and every large ship carries a band in the charge of a bandmaster with rank of sergeant or colour-sergeant. A few bandmasters hold warrant rank.

A commissioned officer can only be punished by court martial. The court, according to the rank of the accused, is presided over by an admiral or captain, and consists of three or four captains or commanders with a paymaster officer as a kind of clerk of the court, known as the Deputy-Judge-Advocate. Punishments are dismissal of ship, which means a period of half-pay and certainly a black mark against the officer's name in the "Doomsday Book" at the Admiralty; the deprivation of seniority; in extreme cases dismissal from His Majesty's service with or without disgrace; and even imprisonment. Sentences have to be confirmed by the Admiralty. In wartime, and indeed even in peacetime, the death penalty can be awarded in certain circumstances; but this has not been known for a century. Admiral Byng, who was sentenced to death for alleged cowardice, owing to his failure to relieve Minorca, was sentenced to death by trial of his peers and shot by a firing party of marines on his own quarter-deck. The King's Regulations and Admiralty Instructions lay down a whole code of discipline for officers and men alike and are known as the Naval Officer's Bible; though the manual is by no means infallible.

An officer has the right to prefer a complaint against a senior,

though it is not healthy for him to do so. I shall deal with these matters in more detail in a subsequent chapter.

The officers of the Royal Navy have a solid ground for grievances in their differential treatment in the matter of marriage allowances; for whereas their brothers of His Majesty's Army and the Royal Air Force were granted marriage allowances during the war, when the rank and file of all three services received them and are still entitled as married men to this assistance, naval officers were not granted marriage allowances, despite much friendly agitation in Parliament. The real reason was not economy, but ancient tradition at the Admiralty; which tradition has always, in practice, opposed marriage in the Navy. The money was, indeed, actually voted by Parliament on one occasion.

Up to some twenty years ago early matrimony, especially by an officer of the executive branch, was a distinct ban on his further promotion. It was certainly dangerous, as regards his chances of advancement, for a naval officer to marry before he had reached the rank of post-captain; and not too safe even then. No captain would take a married commander as his second-in-command if he could help it; and no commander of a sloop or small cruiser would have a married first-lieutenant. For appointments of this kind are made by the second Sea Lord, who is responsible for personnel, or his assistants, and generally in consultation with the newly appointed commanding officers of ships.

The fixed idea of the Navy was that a naval officer's ship should be his wife, and that he must not think of matrimony until he reached high rank. The exception was the flag-lieutenant, who was expected to marry one of his admiral's daughters; his father-in-law then looked after his further promotion. Officers who had married comparatively young tried to obtain independent commands, where the pay was better; or drifted into the Coast-guard Service.

But a change began to take place in the early years of the present century. Destroyers and submarines gave opportunities for command at better pay to comparatively junior officers, a larger portion of the Fleet was stationed in home waters for strategical reasons, and an epidemic of matrimony spread through

the destroyer and submarine service, in particular, to the horror of the senior officers afloat and the distress of the Admiralty. Indeed, confidential letters were sent to all the commanders-in-chief to do everything they could to uphold the old naval tradition and discourage early matrimony. Nature was not, however, to be denied, and I should think that in 1932 ten officers are married men for every one that there was in 1900.

The attitude towards marriage amongst the seamen was similar, though not quite so stringent, as I have described in the last chapter. The war made it necessary for marriage allowances to be made to the many men with family responsibilities who entered the three services ; and the Admiralty was forced, however much against its will, to extend this boon to the warrant officers, petty officers, seamen and all equivalent ranks. But my lords "got their own back" on the commissioned officers, and from that day to this naval officers receive no marriage allowance, though their pay is little, if anything, better than that of corresponding ranks in the Army and Air Force.

This anomaly was nearly ended in 1925. As the result of much pressure in Parliament the Admiralty, with the present Viscount Bridgeman, then Mr. Bridgeman, as First Lord, decided to introduce a marriage allowance for naval officers, the extra income corresponding to that of the military and Air Force officers. An additional sum of £350,000 was actually included in the Navy Estimates and voted in Parliament without opposition. The Admiralty blushed under the unanimous congratulations which followed this long-overdue reform. But the cup, seemingly at last raised to the lips of the naval benedick, was dashed away. A recurrent wave of economy swept either the Treasury, or the Admiralty, or possibly both ; and these two Departments of State combined to rescind a desirable concession.

There is no doubt that the officer corps of the Royal Navy has been abominably treated in this matter. And I fear it will be many years, owing to financial stringency, before matters are put right. What advantage this can be to the nation it is difficult to understand. Our naval officers are, literally, the pick of the country. The physical examination on entrance is the stiffest in any of the services of the Crown. A high standard of education

is required, and the misfits during the probationary training period are weeded out of the service. The pay is not high ; a married naval officer is worse placed than his colleagues in the Army and Air Force, for he has to keep up two homes, his mess on board ship and his house on shore ; and this is a period of a falling birth-rate amongst the educated middle classes which does not promise well for the future of the British race. Indeed, in the years ahead of us the professional and middle classes of our country will have to face falling incomes, restricted opportunities of employment, and therefore lesser opportunities of marriage. In the national interests it would surely have been far better to have encouraged matrimony amongst officers of the Royal Navy on eugenic principles, as well as to avoid inflicting an injustice on a body of men who have never failed the country, and who certainly feel with some bitterness the shabbiness of their treatment.

CHAPTER VII

"THE DAILY ROUND, THE COMMON TASK . . ." AND PREPARATIONS FOR BATTLE

Organization of work in a warship—Importance of routine—The day's work—Cleaning ship—Defaulters and punishments—Grievances and their remedy—Watches, "parts of ship" and divisions—Sea routine—Signalling at sea—Wireless—Target practice—Battle stations—Fire control—Warships in action—Methods of controlling fire—Strain on personnel in action—Ordeal by battle—Special qualities needed in naval ratings.

A MAN-OF-WAR is a floating home for a crew that may number over 1,000 in the largest superdreadnought, down to three officers and twenty men in a river gunboat ; she is also a busy workshop and training school. Not only must her equipment, armament and engines be kept in repair and in a thoroughly efficient state, but, in the large ships especially, a great deal of instruction and training takes place for midshipmen, boys and the younger seamen, stokers and marines.

And, lastly, she is a fighting machine, always kept instantly ready for her grim duty. Any well-organized man-of-war could go into action, *without any previous warning*, in half an hour ; while, if trouble had been expected, she would be ready in a few minutes. And her crew must be kept in good health and spirits, contented, and "happy" in the naval sense. For an unhealthy or disaffected crew is not efficient. All this requires the most careful and minute organization.

The two hardest-worked people in a large man-of-war, fore and aft, above decks or below, are the second-in-command, who acts as executive officer, and the engineer officer, who is also second in seniority in the engine-room, and carries out duties corresponding to those of the executive officer under the senior of the engineering officers. The captain is responsible for everyone

and everything in the ship; but the actual work is done by the heads of the different departments—executive, engineering, medical, accounting, marines, etc.

The whole system of organization rests on what is known as the routine, and is more or less uniform throughout the Navy. Thus there is a daily routine which is a programme of work and duties lasting throughout the twenty-four hours, both at sea and in harbour. There are certain things that are done every week, others that are done every month; there is a quarterly routine such as exercising divers, and reading the Articles of War, and mustering the seamen's, and stokers bags and hammocks, etc.; and there are certain yearly events, such as the testing of anchors and cables, the examination of under-water fittings, in dock if possible, and an inspection by the admiral on the station.

This uniformity in routine is necessary so that officers and ratings drafted from one ship to another will quickly fall into their appointed places and understand their proper duties.

Let me describe the day's routine in a man-of-war in harbour. There is not very much difference between a warship at sea in peacetime and the same ship at anchor, except that at sea there are more people actually on watch above or below decks; while in harbour, under normal conditions, daily leave to half the men is given after working hours.

We will start with midnight, the beginning of another day. The middle watch, with their turn of duty between 12 and 4 a.m., relieve those of the first watch who have kept guard over the ship or performed certain other duties between 8 p.m. and midnight. There will be an officer of the watch, usually a lieutenant, or sub-lieutenant, or subaltern of marines, who has under him a petty officer as quartermaster, one of the same group who are in charge of the helmsmen at sea; a marine corporal; and, in the daytime, two or three boys or young seamen as messengers and to do various odd jobs such as looking after boat ropes and the gangway. There will be two or three signalmen on the bridge, and three or four marines as sentries: one outside the captain's cabin, where there is a large keyboard on which are the keys of the magazines, spirit stores, strong-rooms, signal books, etc.; another sentry in the large flats, as they are called, between decks, where

the officers' cabins are and the midshipmen sling their hammocks and have their sea-chests ; and another sentinel at the other end of the ship in charge of the prisoners, if any, in the cells.

In days gone by a sentry with a loaded rifle used to patrol the fore bridge in harbour to prevent deserters leaving the ship or thieves entering her. And such a sentry is still sometimes necessary in foreign ports to prevent pilferers or other evilly disposed persons from sneaking alongside forward in small boats.

Below, electricians are in charge of the dynamos ; and a boiler or two is always kept alight to supply steam power, with a chief stoker and a small party of stokers under him. In very bad weather an anchor watch is set ; that is, a petty officer and two or three seamen have the duty of keeping an eye on the cables ; and sometimes the officer of the watch will have to keep his vigil on the bridge, and steam for propelling purposes kept up below in case of emergency.

In my watch-keeping days I used to enjoy the middle watch ; one had the whole ship to oneself, and, as a young officer, I felt a pride in being monarch of all I surveyed. But I hated the morning watch, which began at four, and especially the last two hours of it, from six to eight. This came one day in four ; and when I was a midshipman, if we got through the morning watch without having our leave stopped for some delinquency or omission during the most strenuous period of the day, it was a matter for self-congratulation.

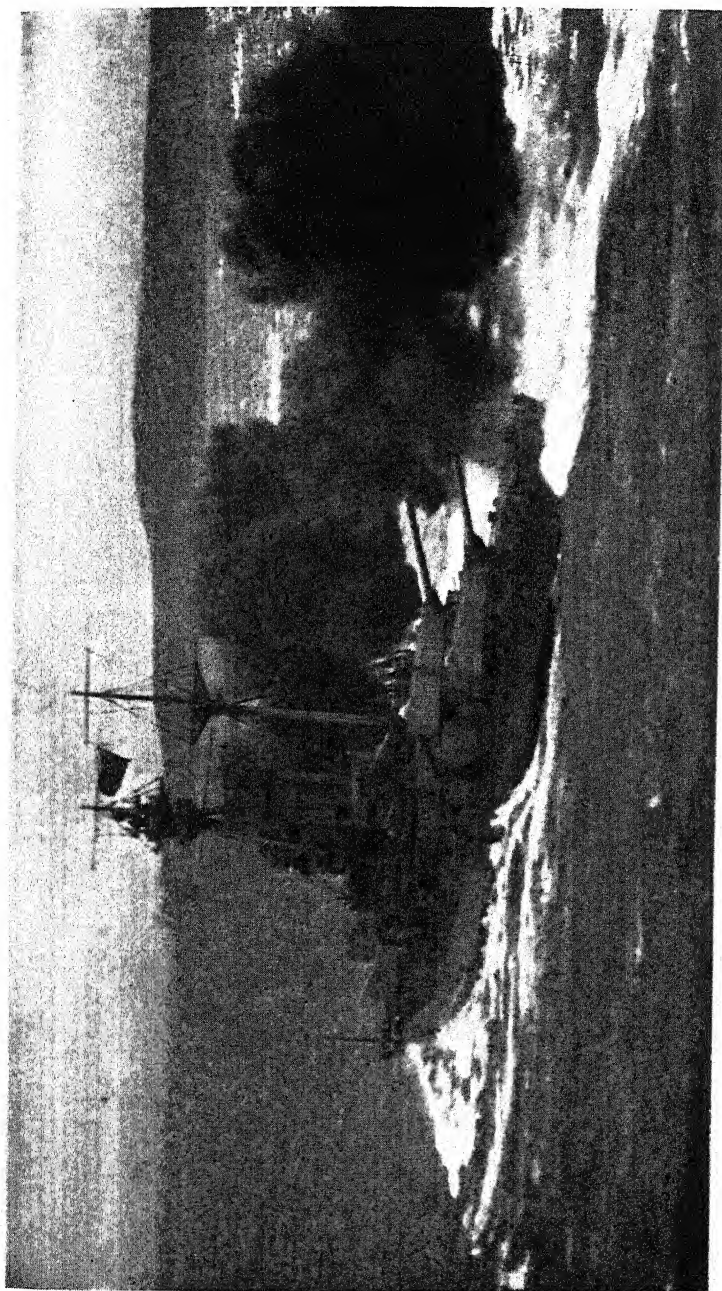
At either 5.15 or 5.30, according to the routine of the particular ship or station, the hands are called by the sounding of the reveille by the marine buglers and a time-honoured pipe by the quartermaster and the boatswain mates, who have been turned out earlier for the purpose, with their shrill pipes and the order "hands lash up and stow hammocks". The modern ships have loud speakers and amplifiers fitted on all the decks ; and the original order, now given into a speaking tube, is repeated all over the ship. The hands are sleeping in hammocks over their messes, and the mess decks, owing to the large crew that a man-of-war carries, are pretty crowded. In the tropics the men are allowed to sleep on the upper deck in fine weather, laying their hammocks

on the planking. The hammocks are of canvas with a mattress and pillow and the usual bedding, and are extraordinarily comfortable to sleep in. I know old sailors who cannot sleep out of a hammock, and sling one in their homes on retirement. The hammocks are lashed up for the day into the shape of a sausage, and are stowed in special bays placed in such a position that they form a protection to vital parts of the ship.

In the old sailing ships they were stowed in special compartments all round the upper-deck bulwarks, known as the hammock nettings, where they protected the crews of the upper-deck guns. But now they are all stowed down below for the protection of the engines or magazines. The crew put on their working rig, or night clothing, as it is called, usually old serge jumpers and trousers. The stokers "clean into" overalls; for whenever a naval officer or rating puts on or changes his clothing he calls it "cleaning into" such and such a rig; and the stokers proceed to their work in the engine-rooms and stokeholds. The seamen and marines fall in in their "parts of the ship", that is the fore-castle men, maintop men, etc., together under their own petty officers, but all on the quarter-deck, or at sea forward on the upper deck, after a cup of cocoa and a biscuit.

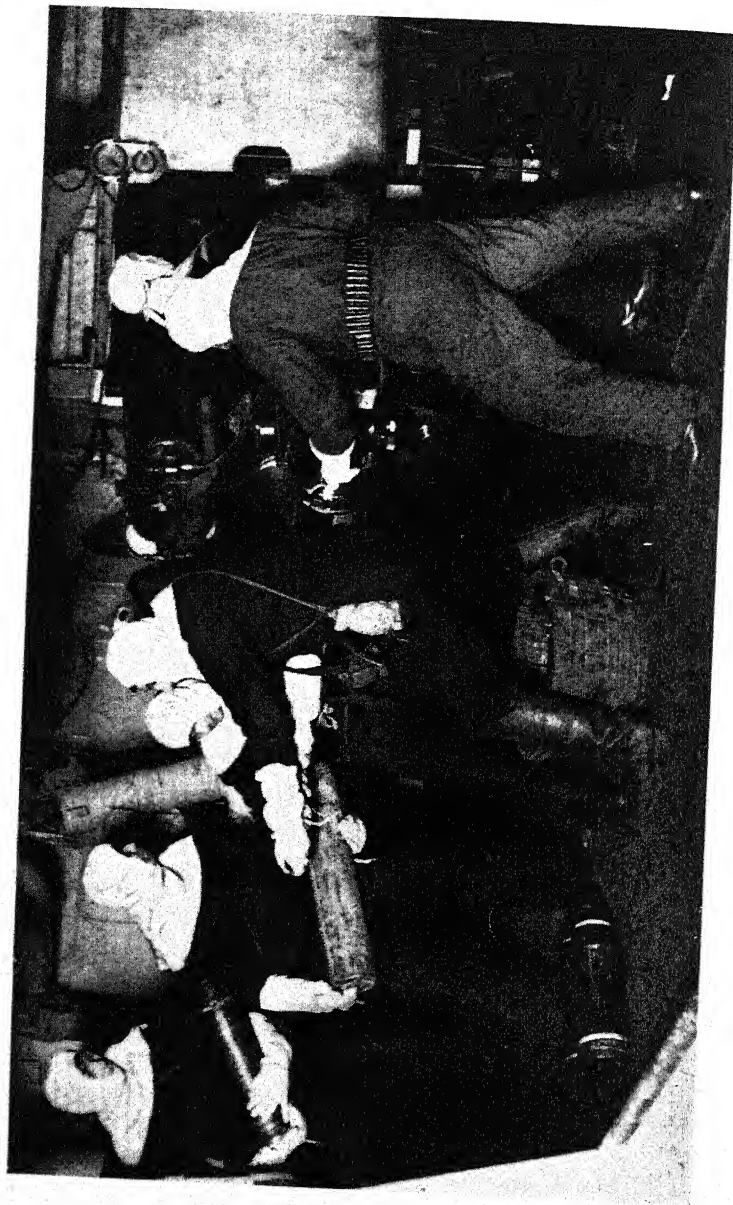
Round bowls used to be the only drinking utensils supplied in the broadside messes, that is, the seamen's and stokers' messes, but now cups and saucers have taken their place in a gentler age. "Hands fall in" is at 6.15; and the executive officer, assisted by the boatswain, officer of the watch and other functionaries, "tell off" the special working parties, etc. The boats' crews are sent to lower, scrub out and clean up their boats; the marines clean their own quarters and the passages and open spaces round the officers' cabins; and the remainder of the seamen and boys hose down and scrub the upper deck.

Once a week the upper deck is scrubbed with sand, and in harbour the quarter-deck is usually holystoned on Saturday mornings by being vigorously rubbed with small sandstones known as prayer-books—I presume because the seamen do it on their hands and knees. At 7.15 the guns and brasswork are cleaned, the ropes coiled down and everything tidied up. At 8 o'clock the colours are hoisted with ceremony, the band playing



Imperial War Museum

H.M.S. "ROYAL SOVEREIGN" FIRING A FIFTEEN-INCH GUN SALVO



SIX-INCH GUN IN ACTION: LOADING, RAMMING HOME THE PROJECTILE

the National Anthem. The crew are then piped to breakfast and "clean into" their proper uniform for the day. At 8.45 there is a further general sweeping and clearing up; and at 9.10 the crew fall in by divisions, under their own officers, petty officers and midshipmen, are inspected and then marched aft to prayers, read by the chaplain in large ships and by the captain or commanding officer in smaller ships. After prayers, and on certain days physical drill, the crew double away to their special duties, the seamen and marines falling in again on the quarter-deck, where they are once more detailed for the work of the day by the commander or first-lieutenant. The training classes and boys are fallen out for their instructions and drills, and everyone is supposed to have some work or duty to perform till twelve o'clock, when an hour and a quarter is allowed for dinner and the drinking of the daily tot of rum-and-water.

Defaulters are seen by the executive officer in the middle of the forenoon, and by the captain at seven bells or 11.30 in the morning. Any man committing an offence is first brought up by the petty officer or ship's corporal reporting him to the officer of the watch, and it is one of that official's duties to see and deal with malefactors, major and minor. They are, in trivial matters, either cautioned or given a small punishment by the officer of the watch, such as half an hour's extra work, but the majority of cases go to the commander or executive officer. He can deal with the more serious cases, but the most serious of all go to the captain, as also do the request-men, i.e. any petty officer or rating with a favour to ask or a grievance to ventilate. The executive officer's powers of punishment are similar to those of a magistrate, the captain corresponding to a county-court judge, and very serious offences go to a court-martial, which corresponds to an assize court. The ordinary sort of punishment for faults, such as being late on parade, or leaving kit about, or any minor negligence of duty, is dealt with by the executive officer. Leave-breaking, cases of violence, disobedience, drunkenness, and all such more serious offences go to the captain.

I shall deal in a separate chapter with the question of discipline, which is of great importance in a fighting service, and

which is passing through a period of transition owing to social changes and other causes.

An example of a request-man is a seaman who has completed his time for a good conduct badge. He has to appear before the captain to be granted it.

In theory, a man who has a grievance first of all sees the officer of the watch, then the executive officer, and if the latter cannot put the matter right it goes on to the captain.

One of the most extraordinary cases of a grievance being presented that I heard of was that of a Chinese cook in one of the large armoured cruisers on the China station. She was not the ship in which I was serving, but was in the same squadron, and I heard the story at first hand.

We carried, as is always the custom on the Asiatic stations, native messmen, cooks and stewards—and very good they were. The post of Chinese steward or cook in a man-of-war is eagerly sought after; and no doubt the holders of these posts make a very good thing out of them. In this particular case the Chinese cook preparing the food for the gunroom mess had been giving dissatisfaction. The climax was reached when he served up a bad dinner at the weekly guest-night, when a special menu is prepared and, even in the gunroom, every officer puts on evening dress and guests are invited. The president of the mess, a sub-lieutenant, had his own ideas of justice, and instead of reporting the cook for neglect of duties he had him brought into the gunroom on the following morning and given twelve strokes with the cane.

Now the cook was a "big man" in his own village, proud and wealthy withal, and this treatment was too much for him. He accordingly put in a request to see the captain. The president of the mess had visions of himself before a court martial and possibly the end of his naval career. The matter was desperate, and desperate remedies had to be taken. The cook spoke no English, and the messman would, ordinarily, interpret for him. The messman was accordingly brought into the gunroom and told that his life wouldn't be worth an hour's purchase unless he interpreted in the way in which he was thereupon instructed.

When the cook was brought before the commander he said,

in Chinese, that he had been assaulted in the mess ; the trembling messman interpreted this as wanting extra leave, and the request went on to the captain ! Before the captain the cook gave a long account in Chinese of the brutal treatment he had received, and the terrorized messman gave an equally long and involved account in pidgin-English as to how his cook wanted extra leave to go to his village to be married. The captain looked up the records and found that during the previous month the gun-room cook had had a fortnight's leave for this very purpose ; so he gave him a good wiggling in English and told him he must wait till the ship returned to Hong Kong and could obtain leave in the ordinary way. This was translated by the messman as a homily from the captain on the need of taking more care with his culinary duties, and that he had only got what he deserved. The astonished cook was then marched off the quarter-deck.

That was not, however, the end of the matter. The lawless occupants of the gunroom feared that when the cook recovered from his surprise he might put in a further request to see the admiral, and in that case the admiral might employ one of his own servants as interpreter. So he was brought into the gunroom again, this time resisting stoutly, for he thought he would get another beating. The cook was then told that if he kept quiet there would be a suitable reward as compensation, and, after some haggling, a bag of silver Mexican dollars, the currency on the Chinese coast, was paid to him and the matter at last ended. All the junior officers of that ship declared that the cooking improved thereafter.

But to return to our routine. The afternoon is spent in much the same way as the forenoon, except that more training classes are at work, and at seven bells, or 3.30 p.m., a steamboat leaves the ship with officers whose turn it is to go ashore. At four o'clock there are "quarters", when the men once more fall in by their divisions ; and then the watch off duty "clean into" their shore-going rig and land immediately after until the following morning, the boys going off to the ship at 7.30 unless allowed to sleep ashore with their families. Twice a week the watch on deck carry out a drill after quarters under the officer of the watch by order from the flagship, or, if the ship is detached, by order of

the captain, such as landing a fire engine or laying out a small anchor, known as a kedge anchor, sometimes used for keeping a ship steady in a certain position.

General drills are heavy exercises employing everyone on board, such as manning and arming boats, which means equipping them for landing purposes; or laying out one of the bower anchors, the largest anchors carried; or clearing for action, which means furling the awnings and clearing away every obstruction in the way of the guns; or similar exercises. This is usually on a Monday or Thursday morning. In some commands a forenoon every week is spent in landing the seamen and stokers organized in companies with rifles and ammunition, boots and gaiters, for a route march or field exercise. The divisions of a ship, forecastle men, foretop men, maintop men and quarter-deck men. The companies for "playing at soldiers" correspond to the divisions for landing purposes, and are designated A, B, C, and D, the stokers forming a fifth company and the marines a sixth. These divisions, "parts of the ship" and landing companies always work under the same officers and petty officers, and, where possible, they form the gun crews of a part of the armament, again organized and drilling and fighting under their own officers.

Thus the forecastle men, in a dreadnought, man the fore turret, including its magazines and shellrooms; they work on the forecastle at drills, including the handling of the anchors and cables when anchoring or mooring ship; and they form the first division of seamen and the A company in the landing party. And they all mess together on the forecastle men's mess-deck, except the petty officers, who have a mess of their own. Each division is in charge of a lieutenant, or lieutenant-commander, who in his turn is in charge of the fore turret in the case of the first division, the forecastle men.

If one of the forecastle men is involved in an offence against discipline, and the officer of his division has had no part in the reporting of the crime, or is not in any other way involved, he acts as "prisoner's friend", that is, he helps the accused in the preparation of his defence before a court martial. The men are

encouraged to go to their own divisional officers for advice generally ; and when it comes to choosing seamen for promotion the officer of the division has a good deal to say in the matter. When kitbags and hammocks are laid out for inspection the officer of a division carries this out, and, generally speaking, good officers of divisions can play a considerable part in the efficiency and contentment of the crew.

One of the weaknesses of the modern navy is that, with so much specialized work, officers of a division have not always sufficient time to give to the care of their men. And changes of officers are far too frequent, in many cases, for efficiency. Under the officer of a division are two or three midshipmen, and the division itself, like the whole of the crew, is divided into two watches, port and starboard, each under its captain of the top. Thus the captain of the forecastle is the senior of the two petty officers in the first division, and is usually in charge of the starboard watch ; the second captain of the forecastle, also a petty officer, is in charge of the port watch. And there are four to six leading seamen divided between the two watches of each part of the ship or division.

Unless there is some special duty being performed, Friday morning is given up to "general quarters", which deserve a description in detail ; but, first, to finish the description of the daily routine. Four to six and six to eight are the dog watches. After the watch drill and tea there is not much work done ; colours are hauled down at sunset, the bugles sounding the last post, the men going to supper at 6.30 or 7. At 8 o'clock they go to the nettings by order of the pipe "stand by hammocks". The hammocks are unstowed and slung up for the night.

At nine o'clock the executive officer, with the master-at-arms and the corporal of the watch, go round all the mess-decks and lower decks to see that everything is in order for the night. Ten o'clock is "pipe down", which means lights out and everyone is supposed to turn in.

At sea the routine is similar, except that the seamen work in two watches, port and starboard, and the engine-room and stokehold ratings in three—first, second and third. Thus the decks

are scrubbed by the watch of seamen that is on duty between four and eight for the morning watch.

The officer of the watch keeps his vigil at sea on the fore bridge, or navigating bridge in a large ship, and when with the Fleet the most important part of his duty is that of station-keeping; that is with the sextant, or other measuring instrument, he is able to tell whether the regulation $2\frac{1}{2}$ cables, or 500 yards, between battleships of the dreadnought type is being retained, i.e. between the stem of his ship and the stern of the next ahead, the speed of the engines being regulated accordingly. The captain and navigator both have special sea cabins forward, so that they can be called to the bridge quickly.

Able seamen are stationed at the telegraphs, and an able seaman steers under the directions of the quartermaster. When near land leadsmen are kept in the chains and they sound (take the depth of water) continuously, as is also done when a ship is entering or leaving harbour. With the modern speeds the hand lead is not of much service except perhaps as a warning if the ship suddenly runs into shallow water; and for accurate sounding a sounding-machine is used, with piano wire wound on a mechanical drum. There is also an electrical sounding apparatus now fitted in the bottom of modern ships which measures the depth of the ocean bed by a kind of electric echo. This is on the same principle as the electrical apparatus for detecting the presence of a submerged submarine, to which I referred in the chapter dealing with anti-submarine warfare. Look-outs are placed, especially at night, who report all lights or other objects sighted; though it is, of course, the signalmen, with their trained and practised eyesight, who can be particularly useful in this connection.

From the watch on deck, a sea boat's crew is told off, and these men are not allowed between decks during their period of duty. Two twelve or fourteen-oared rowing cutters are kept ready for instant use, as sea boats, one on either side of the ship, with many clever devices for enabling them to be lowered away very quickly into the water in case of a man overboard.

At sea certain watertight doors are always kept closed; and the others can be closed either by pulling over a lever on the

bridge, when hydraulic rams close the steel watertight doors after the warning gong has rung, or they can be closed by hand, the watch being specially organized for this purpose so that all these watertight doors can be shut quickly in case of emergency. The modern man-of-war is minutely subdivided so that slight damage below the water-line will not flood more than one of her many compartments.

On active service certain of the guns are always kept manned in case of submarine attack, and special look-outs placed; while if the weather be thick, and during the night, part of the main armament is manned as well, the crews sleeping by their guns and the searchlights kept ready for instant use.

In addition to lighting up the enemy at night, the searchlights have another use, and that is for long-distance signalling. A special movable shutter is fitted, and if a searchlight is trained on the bridge of a consort up to seven or eight sea-miles' distance, the opening and closing of its shutter is like the flashing of a heliograph, and signals can be sent in the Morse code. For short-distance work, up to three or four miles, a special signalling arc lamp like a small searchlight, known as a cruiser flashing lamp, on exactly the same principle, is used.

The searchlights carried, to the number of eight to twelve in a large ship, can, if necessary, be controlled from a station near the conning tower and all manœuvred on to the target or targets as desired, by one or two men.

Signalling has reached a high degree of efficiency in the Royal Navy. General signals from a flagship to a Fleet at sea are made by flag, and a long message can be transmitted by the combinations of the flags in the naval signal code. For very long distances large black shapes, cones, squares and globes, are used, hoisted in certain combinations which have the advantage that the wireless need not then be employed. The searchlights and cruiser flashing lamps I have already referred to. At night flashing lamps are used with the Morse code, and on active service special shaded flashing lights, only showing in a certain direction, are employed. These are also used on active service for making the challenge signal and reply, so that friend may be distinguished from foe.

A system of coloured lights, white, green and red, in certain combinations, is sometimes employed for this purpose too, so that vessels meeting at night on active service can disclose their identity quickly. In the daytime the semaphore system is in very general use, either mechanical semaphores or a signalman standing on the rails of the signal bridge using his hands or small flags, or standing on a small stool where he can be seen by the vessel taking in the signal.

Supposing a fleet is at sea, proceeding in single line ahead, one vessel following the other, and the admiral wishes to turn the fleet through an angle of 90° to the right, or 8 points to starboard, as we would say, all the ships alter course simultaneously. The appropriate flags for this purpose are hoisted at the yard-arm, and every ship in the fleet, as soon as she sees the admiral's signals, hoists an answering pennant "at the dip" (that is, half-way to the yardarm or masthead) to indicate that the signal is seen, and close up (that is, hoisted as far as the flag will go) to show that it has been understood. When all the ships have answered and the time has come to turn, the executive signal is made by hauling down the hoisted flags and all the vessels turn simultaneously.

The signal books are highly confidential and are kept locked up when not in actual use. They are weighted with lead so that they can be thrown overboard and sunk in case of imminent capture in time of war.

Early in the Great War a German torpedo-boat was sunk by the Russians in the Baltic. Her yeoman of signals went overboard with her precious signals code and was washed up dead, still holding them to his body, faithful to the last. The corpse was washed up on Russian territory, the signal books recovered, sent to Petersburg and as quickly as possible photographed and sent to the Allies. This provided very valuable information, and was the basis of the elaborate system of decoding which was developed during the war.

Wireless has many advantages, and every ship, large or small, now carries it; but it has the great disadvantage that its use may disclose the position of the Fleet; and, sooner or later, all messages, however carefully veiled, can be decoded. Indeed, there is a

regular science for decoding wireless signals, and any messages can in time be deciphered, and sometimes in a comparatively short time. In operations at sea, therefore, the silence signal is usually made, which means that no wireless may be used except in special emergency, such as sighting the enemy.

Wireless telephones have come into use now, and an admiral can address his captains by this means. The first to use this system on active service were the American anti-submarine flotillas, organized when the United States entered the war. I was at Gibraltar when the first flotilla of American anti-submarine chasers arrived. They were small motor-boats, had made the long ocean voyage by way of the Azores, and had the latest equipment known for chasing submarines. But there was not a professional seaman amongst them except the commanding officer of the flotilla. Most of his officers and crew seemed to have come from the prairies of the Middle West, and represented every profession and calling except that of the mariner! They were tremendously keen, but, naturally, very inexperienced.

I went to sea with them for their first active anti-submarine operations against an Austrian submarine that had been giving trouble and got it herself. The wireless telephones were in use, and the American commanding officer found them a tremendous boon; indeed, he spent nearly all his time talking into the mouth-piece of his telephone. He had the most wonderful collection of oaths and expletives that I have ever heard. He declared this was the only language that his motley crew understood.

To detect a submarine by hydrophones means listening for her under water with one's own engines stopped, and to ascertain the position of the submerged vessel the listening surface ships must be accurately stationed and spaced. When one of the chasers detected the sound of the enemy submarine trying to sneak away (for it was far too deep for her to lie on the bottom) her crew could not resist the temptation to start their engines and move in the supposed direction of the intended victim. This "blotted out" the other hydrophones, and the language from the "flagship" would become lurid. But we got her in the end!

These telephones were adopted many years later in our service, but have only a limited use, and are not very popular.

Sometimes there is a good deal of backchat in signals, as in the case of one gallant officer who was in command of a small ship known as a pirate—meaning that he and his crew rather inclined to indiscipline. In the Grand Harbour at Malta on one occasion he had all the hammocks of his crew scrubbed and hung up to dry without asking permission of the flagship. With the Fleet in harbour, and with an admiral present, no ship is supposed to hoist its washing or haul it down or spread its awnings or furl them or do anything else of the kind except "in step" with the flagship. Our piratical friend promptly received the signal, "Why are your hammocks hanging up?" and sent back the reply in two words, "To dry." The next signal was "Captain repair on board", which meant he was to report himself on board the flagship in a frock coat and sword, there to receive a wiggling.

A certain gallant officer who was a senior admiral, and made much history during the Great War, received early promotion owing to very lucky war service earlier, and was regarded with some jealousy by far older officers of longer experience and service. As a captain, with several ships in company at target practice, this gentleman made a signal to the warship told off for the duty of towing the target—a huge wooden structure like the upper deck of a ship, on which is erected the lattice-work masts to carry the canvas sails of the target for long-distance firing. There was some delay in getting the target ready, and the lucky one rapped in a signal to the officer of the target ship to ask how long the target would be. The reply came back, "Ninety feet."

The first time I came under fire was as a midshipman in charge of a steam pinnace to carry the target repair party. Between "shoots" it was necessary to change the sails, for this was individual firing, in which gun's crew competes against gun's crew and substantial money prizes are given to the gunlayer and crew who make the largest number of hits in the squadron. The weather was rough, and we had gone alongside the target on that side which was away from the ship that was to fire at it. Owing to some misunderstanding, and through not being able to see us, she began her shoot while we were still alongside the target, and the first we knew was a six-inch projectile hurtling through the air a few feet above the target with a noise like an

express train. I have never seen men move quicker than the target party in regaining my pinnacle. When all had leapt aboard we shot away from that target under full steam like a streak of greased lightning, blowing our steam whistle. But not before two more shots had followed in quick succession, fortunately not hitting anyone. These, of course, were solid practice projectiles, not explosive shells.

It is quite possible to see a large shell in the air coming towards one for what seems quite a long time, though actually only a second or two; and they usually give the impression of coming straight for the bull's-eye—which, of course, is oneself.

The most important target practice is carried out at long range under battle conditions, the target being towed by a tug or other ship at the end of a steel rope. The Navy has an old battleship fitted as a target ship, which can be steered and her engines controlled by wireless from another vessel. She is heavily armoured, and zigzags about gaily under a storm of projectiles without a living soul on board.

Night firing is also carried out with the searchlights blazing, and also star-shells for illuminating the target, these bursting in the air and lighting up the surface of the sea for a considerable distance. And there is the individual prize firing for the encouragement of good shooting by the gunlayers and quick loading by the guns' crews, already referred to.

I have already mentioned the weekly exercise known as general quarters. Wherever a man-of-war is, whatever she is doing, unless in the dockyard for repairs or taking in stores or oil or for other special reason, every Friday morning is sacred to the exercise of general quarters, which means battle stations. Every officer, man, and boy in the ship goes to his appointed post.

The organization here is minute. Every gun is manned, and each has a special party told off for the passing up of ammunition and projectiles. The torpedo tubes are manned. The signalmen are in their armoured battle stations; the captain, navigator, and one or two other officers in the conning tower. The actual steering is done down below, by order from above, under

cover. The surgeons go to the dressing-stations with the sick-berth staff; and certain ratings, such as the cooks, writers, messmen, etc., are told off as stretcher-bearers. Every officer and man likely to be exposed to gas attack has his anti-gas mask. The warrant-carpenter is in charge of a repair party; and the stokers not needed in the stokehold act as a fire brigade, under an engineer officer.

Every kind of emergency is provided for; but the most important part of the ship as a fighting machine is the control tower or top, at a good height on the foremast. There is a secondary control position, in case the first is shot away, and a third in one of the turrets.

In the control tower is the principal gunnery officer with his assistants. There is a large range-finder here, with another lower down, usually on top of the conning tower, and a third aft, in the secondary control position, and the foremost and after turrets carry large range-finders, and sometimes an instrument is in each one of the turrets.

We will suppose a battle-cruiser is going into action with an enemy vessel that has just been sighted, perhaps twelve miles away. Every range-finder is levelled on to the target. As the ranges are taken they are transmitted down to the plotting-room well below the water-line in the very bowels of the ship. Here on a table is a large "squared chart". The officer in charge of this plotting-room marks off with suitable instruments the course and speed of his own ship as they are reported to him, and the mean position of the target as it comes to him from the various range-finders. He is presently able to estimate the course and speed of the enemy ship fairly accurately. Very elaborate instruments, known as rate-of-change clocks, are also operated in this lower station. When it has been decided what the distance apart of the two ships is, and likewise their respective courses and speeds, it is also possible to decide what the *change of range* is from minute to minute, and to prophesy the range many seconds ahead. This is necessary because the relative positions of the two ships, and therefore their distances apart, will change during the time of flight of the projectile from the moment when it leaves the gun muzzle to the moment it

arrives at the target. And for accurate shooting at long range it is necessary to foretell exactly what the distance apart of the two ships will be by the time the projectile reaches the object at which it has been fired.

There have to be certain corrections put to this range to allow for the temperature, pressure of the atmosphere, and, at each gun, for the idiosyncrasies of that particular gun, which are very carefully calculated and tabulated, and the distance apart of the turrets or "convergence" as it is called, for it must be remembered that at long range, say 20,000 yards, with the engaging ships only just in sight, the angle of descent of the projectiles is very steep, and if the range is not calculated within fifty to a hundred yards there will be no hitting.

From the above description it will be seen what a very complicated business it is to organize an accurate fire from one moving ship to another ten miles away, both of them steaming at high speed and in different and varying directions. A number of highly trained officers and specially chosen and trained ratings are employed in working the different instruments and making the elaborate calculations necessary. And the whole of this system is duplicated in the secondary control station in case of the breakdown of the first. There is a similar system for the torpedoes—for they may be required to be fired at a different target—and yet another control system for the secondary armament, which may be required to engage torpedo-boat destroyers, while the main armament of our battle-cruiser is firing at a large ship-of-the-line.

Up aloft in the control tower is also a telescope sight, like the gun-sighting telescope of a ship's cannon, which, when moved so as to bring its crosswires on to the target, automatically lays every gun in the main armament on to the target also. This is known as directional firing, and means that one officer, or seaman, can train and lay every gun in the ship that will bear on to the same spot on the same target, whether it is a canvas target for practice purposes, a superdreadnought, or a battery of artillery on shore. And all these guns can be fired together by the pressing of a single firing trigger by the same officer or man who is looking through the directional telescope. Some notion can be gathered,

even from this brief and cursory description, of the complexity and delicacy of the instruments used for this purpose.

In case of a breakdown each gun can be fired by its own gun-layer in the turret independently. When our battle-cruiser, in this imaginary naval duel, is within fighting range, and the gunnery officer believes he knows approximately the distance and rate of change, he reports to the captain, who will probably order him to open fire. Bringing the crosswires of his director telescope on to the foremast of the enemy, for only his upper-works are as yet visible above the horizon, he presses the firing key and four 15-inch or 16-inch projectiles are sent on their long journey. These will be the four right guns of the four turrets, and the left guns will be immediately ready for firing also; but at that long distance he will probably wait to observe the fall of the first shots. We will suppose that, with their immense fountains of water, higher than the mast of a large ship, they fall, exploding, on the surface of the sea, short of the target. The range has been underestimated. "Up eight hundred" orders the control officer, and every gunsight throughout the ship receives an indication for the sight-setter to increase the elevation by eight hundred yards. An electric light in the control top indicates when every sight is reset, and another when every gun is loaded and ready; the control officer then fires the four left guns. This time the salvo of four shells bursts in a group, like a handful of huge feathers, just beyond the target. The order is given "Down four hundred", and every indicator dial on every gunsight is put down four hundred yards. By this time the right guns will have been loaded, and as soon as they are ready they are instantly fired. If he has guessed right and the rate of change is approximately accurate he should get hits or straddle; that is, there is a splash short of the target and three over it, or perhaps only two splashes and the dull red explosions of bursting shells on the hull of the ship which mean death and destruction. And during this process the range-finders are continually taking ranges and the distances being continuously calculated afresh, and the gunsights altered from the plotting-room down below to keep the accurate setting as the range alters.

It is as if the foretop is the eye and the plotting-room the brain,

both working together. As soon as there is a straddle, which means the range has been found in an action, the most rapid fire would then be kept up, the groups of four right or left guns being fired as soon as the indicator showed that they were loaded. To assist the spotting, that is, the marking of the fall of the shot, and to be able to see whether they are over or short, instruments known as hit-recorders are provided. The exact time in seconds and split seconds occupied by a projectile in reaching the target at various ranges from the moment of leaving the muzzle is worked out and adjusted on a small clock. A midshipman or some other suitable person keeps this little instrument set to the range; and when the salvo roars out below him he presses a button. When the projectiles should reach their objective a light is flashed or else a buzzing sound made, and sometimes both, according to the pattern of the instrument used. The object of this is to be able to tell one's own shots, in the case of one's own and another vessel firing at the same target at the same time.

The din made by the main armament of a dreadnought battleship, or battle-cruiser, is terrific; and when, at medium range, the smaller guns go into action too, with their more rapid fire, it is like hell let loose. Even the smokeless powders make a good deal of smoke, and noxious fumes come from the guns, while if one's own ship is being hit as well, the stench and smoke and reek and noise are terrible. The firing of a salvo of the great guns shakes the whole ship; but a hit from a heavy projectile, or two together, makes even the largest ship reel and stagger. A shell falling short of a ship will almost flood her with water, like a huge wave dashing on board. And if a vessel is hit several times with heavy projectiles there is almost certain to be a fire started; for the high explosive will set light to almost anything.

Gas shells have hardly been used at all in naval warfare so far, and there is divided opinion as to their utility. But in any case the smashing effect of the modern heavy guns is so terrific that, with battle joined and hitting established, two huge, costly superdreadnoughts engaging each other will smash one another up in a few minutes.

Probably the battle of Jutland was the last occasion on which

fleets of large modern warships will engage each other. At that battle we had an advantage over the Germans, in that they had not yet perfected directional firing, and their lower control positions were frequently obscured by smoke. In our ships, however, we had the directional firing in a high state of efficiency, and all the guns could be trained and laid from a high position in each vessel, well above the battle. The German advantage at this battle lay in better projectiles, better range-finders, and also a better system of protection for their magazines. The three battle-cruisers which we lost were blown up through a defect in the protection of the magazines.

But accurate knowledge of the distance is not all that is required for hitting at long range. The speed of the firing ship and her target and their lateral direction have to be allowed for, together with the effect of any wind. The allowance for this has to be on the gunsights, and is known as the deflection. This has to be separately calculated and allowed for in the top and adjusted as required according to how the shells are falling.

I have explained in very brief outline the organization for the control of fire so that one ship can hit another at very long distance while both are moving rapidly. And all these elaborate range-takings and clock-settings and calculations and "plottings" and corrections must be carried on with an infernal din, with inevitable excitement, and the ever-present danger of sudden death.

I make bold to say that the control of fire of a warship in action is the highest test of nerves and self-control that falls to the lot of man.

A number of the people engaged will be young and in subordinate positions. The sort of discipline and training required is therefore entirely different from anything experienced in the past. It is a matter of disciplining the intelligence, the nerves and the senses. The crowd psychology of the advancing regiment of soldiers, the sense of solidarity and of moving as one in a homogeneous body of men, is absent. Everything, indeed, is highly individualized. About fifty officers and ratings will be engaged in range-taking and "spotting" and calculating and adjusting instruments and timing in connection with the control

of the gunfire of a large man-of-war in action. And each will have a different, highly specialized, skilled, and delicate individual duty to perform. If one fails the whole system will suffer. There are fifty different duties to be performed by fifty different officers, petty officers and men in each of the turrets in connection with the handling and loading of the guns, and the sending up of the ammunition and the adjustment of the instruments. Down below, unaware of events, will be engine-room and stokehold staffs, who must keep steam and the engines moving even if the ship is sinking under their feet.

The supreme test of naval discipline and training is ordeal by battle. And it only comes once or twice in a lifetime, if then—in between there is much hard grind, monotony, “routine”, and very often boredom. A special type of officer and a special type of seaman, therefore, is required, and the training and discipline that enabled the old-style Navy men to handle and fight their primitive sailing ships is not always suited to modern conditions. This fact must be grasped if the tremendous skill and leadership required to maintain high efficiency in the present-day Fleet is to be realized; while a failure in training or self-control on the day of battle may mean national ruin and the loss of an Empire.

CHAPTER VIII

NAVAL DISCIPLINE

Importance of discipline—Should encourage initiative—Oldtime discipline not suitable now—Leadership—Some failures of discipline—The great naval mutinies—When political motive was present and absent—Causes of Spithead mutiny—Delay in settling it—Parliamentary debates and their effects—Admiralty wobbling—Earl Howe's action in settling trouble—Nore outbreak—Trouble in North Sea Fleet—Admiralty decide to suppress the mutiny—Mutineers blockade Thames—Admiralty offer of pardon kept from main body of mutineers—Collapse of the Nore mutiny—Lord St. Vincent suppresses trouble off Cadiz—Tragedy of the *Hermione*—Good conduct of Fleet in Great War—Russian mutiny of 1905—Baltic squadron in 1917—British naval attaché's part—High Sea Fleet mutiny—Hipper splits up his fleet—Sailors seize Kiel—High Sea Fleet surrendered to Grand Fleet—The Atlantic Fleet trouble—Its origin—Ships involved—Course of the revolt—Admiralty promise redress—How the ratings returned to their duty—Effect abroad—Need for certain reforms in Discipline Code—Some suggestions—Fairness of courts martial in the Navy—Real basis of discipline.

DISCIPLINE in a service like the Royal Navy is of the utmost importance. Even in peacetime a ship at sea is exposed to many dangers, and it is necessary that the morale of her crew should be maintained at a high level. But a man-of-war is also a fighting machine, and constant care is required to keep her crew efficient and her complicated mechanism in good order.

The work that the crew has to perform is becoming more and more specialized, and individual qualities of initiative are needed. There cannot, in the nature of things, be the parade-ground discipline that welds a regiment into a disciplined body for field operations, though since the gunnery renaissance at the beginning of this century increasing attention has been paid to parade-ground methods. Indeed, many thinking officers have, for some

years, felt that there has been rather too much of the Whale Island spirit. Whale Island, officially H.M.S. *Excellent*, is the headquarters of the gunnery branch of the Navy. In addition to artillery training, field manœuvres and infantry tactics are taught there ; and smartness on parade has become something of a fetish. A discipline that is suited for an army on land is not necessarily the best for the crew of a ship at sea.

Nor does discipline mean only the certainty of orders being obeyed. I would describe it briefly as the art of getting the best out of a crew at all times and in all circumstances. And although the test of war must be more searching than peace conditions, nevertheless there is in wartime an increased patriotic spirit to assist and the knowledge that if the enemy is not destroyed in action one's own ship will be. Long years of peace may undermine discipline, especially if the means of preserving it and instilling it into the personnel have not moved with the times. The discipline that was suitable when the seamen were mostly rough, unlettered men, many of them pressed into the service, and others drawn from the lawless elements of the population, as was the case with the crews of the ships that manned the Fleets of Nelson, Howe, Rodney, and other great sea commanders, is not necessarily the most suitable now, when the men are better educated, all of them volunteers, and when great political and social changes are taking place amongst the shore population from which they are drawn. There is plenty of patriotism in the Navy in peacetime, and, generally speaking, a very clear understanding of the importance to the Empire of the Fleet and of its continued efficiency generally.

But it is very necessary that this public spirit should not be alone relied upon. Nothing can replace leadership in a service like the Royal Navy. The most valuable characteristic of a naval officer is leadership. There are born leaders ; but leadership can nevertheless be taught and fostered. In his rude age, Nelson, a born leader, ruled more by love than by fear. He was the idol of his men ; and we have had many great officers who inspired this feeling of confidence and trust. Cochrane, afterwards Earl of Dundonald, was another ; and in our own time, to mention but two (in order not to appear invidious I only mention the names

of those who have died), Admirals Wilson and Lord Charles Beresford were magnificent leaders of men, who inspired all who served under them with the highest sense of duty. And yet Wilson, widely respected on the lower deck, was a stern disciplinarian who never spared the Fleet and probably worked his squadron harder than any contemporary admiral. Beresford, on the other hand, studied the welfare of the men under him with great care, and deliberately bid for popularity in a perfectly proper manner. But leadership can also be cultivated by the right sort of training.

Since the materialist school in the Navy was made predominant by the late Admiral Fisher, there has been some neglect of leadership as a quality in itself. If the surest road to promotion is to qualify and requalify in gunnery and spend all save the regulation sea time at the Admiralty, or in shore gunnery establishments, or on various shore staffs, less attention will be paid to the moral qualities of officers.

A brilliant designer of gun mountings is not necessarily a good leader of men; and yet the executive officer of a warship, still more the commanding officer, and, most of all, the admiral commanding a fleet, must be a leader of men, understand the minds of the personnel of the Royal Navy, and know exactly how to get the best out of them. A successful gunnery or wireless specialist, promoted to commander, is sent to a battleship as executive officer. He may have been, and frequently has been, out of real touch with the men of the lower deck for ten years. And he may not have any natural gifts for leadership. The wonder is that there is not more trouble than there is through certain senior officers having had no recent experience of the actual handling of men.

One hears the same complaint about certain officers in His Majesty's Army, who spend far too little time with their regiments and put in most of those important years in various staff appointments—so I am not picking out my own service particularly.

If the system of training officers in the Navy does not produce the best leadership amongst them there is something wrong with it. And there has been a tendency to award fewer marks

for future promotion for this vital qualification of officers than its tremendous importance would seem to warrant.

The Admiralty has been extraordinarily conservative over the Naval Discipline Code, and has usually failed to make changes until they were long overdue, and in some cases not until some regrettable incident has galvanized the Board into activity.

There has for long been a weak spot, which still remains, in the methods for allowing complaints to be made ; and it is worth noting that in this respect the Army is somewhat in advance of naval practice ; but I shall deal with this matter in more detail later—suffice it here to state that this weakness has led to some regrettable incidents in the past, and that the matter could, and should, be put right. Yet I must not be understood as suggesting that the discipline, generally speaking, has not improved enormously in recent years. This, indeed, is shown very clearly by the actual statistics of punishments inflicted for various offences, some of which, of course, were quite trivial and with no moral turpitude attaching to them. Thus in the year 1912 the total punishments inflicted throughout the Fleet were 117,000. In 1922 this figure had gone down to 65,000, and in 1926 to 45,147, of which 42,700 were quite minor punishments for comparatively minor offences. And since then there has been a steady decline every year in the number of punishments inflicted. The personnel of the pre-war Fleet was larger, numbering 146,000 as against a little over 100,000 to-day. But the decline in punishments awarded is nevertheless very striking.

Again, the courts-martial, on all ranks of the service, was 127 in 1912, and fifteen years later had declined to only 14. Great credit is due to all ranks of the Royal Navy for this falling off in offences, and in the punishments for offences. We now have a steady, well-behaved, sober and well-educated body of men on the lower deck. The reckless, rollicking Jack Tar, very partial to carousals and drunken bouts, has almost disappeared. Let the code of discipline be revised and administered with sympathy and understanding, and all will be well with a service of which the nation is justly proud.

The whole of our nation was startled in September 1931 by serious indiscipline in the Atlantic Fleet, our most powerful

squadron, while it was assembled at Invergordon on the east coast of Scotland for the autumn exercises. As was perhaps inevitable, some very exaggerated accounts were flashed round the world with serious results to British prestige and credit, but I shall endeavour to present the whole Invergordon episode in its true perspective. It has undoubtedly done the Navy harm in the eyes of the general public, and yet when it is viewed in its proper light there is nothing in this episode to cause any weakening of the people's confidence in their Fleet. This object will best be achieved by, firstly, a description of some of the great naval mutinies in our own and other navies in the past when, by comparison, it will be seen that the Invergordon episode was comparatively mild; and secondly, by narrating the real facts and the causes that led up to the actual incidents.

In considering the history of the great naval mutinies it is necessary to distinguish sharply between those that were political and those that were non-political, though certain of them, such as the mutiny in the Russian Black Sea Fleet in the summer of 1905, have been partly political and partly non-political—that is to say, the sailors had grievances which were played upon and exploited by political revolutionaries.

The Russian naval mutiny of March 1917, of which little has become known in this country, except some exaggerated accounts of the murder of officers, was entirely political, and the real or alleged grievances of the sailors had little to do with it. The refusal of the French squadron in the Black Sea to act in support of the Russian counter-revolution in 1919, when the guns' crews refused to load their cannon, was purely political.

The most decisive naval mutiny so far recorded in history was that of the German High Sea Fleet at the end of October 1918. It was part of the spontaneous movement of the German people arising out of war weariness and disgust with the dynasty, and may be fairly classed as political.

In the French Revolution the officers, who were nearly all drawn from the aristocracy, sided with the King and the Court, and the seamen with the people. But this had not the decisive results of the German naval mutiny at the end of the Great War. The movement in the French Fleet was not a mutiny in the proper

sense of the word, but was really revolutionary action. Fighting morale was little affected, and the revolutionary warships fought with great tenacity in many actions, including the hard-fought battle of the 1st of June.

Now the only considerable mutiny, or, rather, series of risings, that has ever taken place in the British Fleet was entirely non-political, and arose solely out of the grievances of the seamen. They were not war-weary, as I shall presently show; there was no defeatist spirit, as in the German High Sea Fleet in 1918; and although all sorts of stories were spread at the time about Jacobin and Republican influences from revolutionary France, no evidence has ever been produced to this effect. I refer to the great mutinies in the squadrons at Spithead, the Nore, in the North Sea, and the attempted mutiny in Lord St. Vincent's Fleet off Cadiz, all in the spring of 1797. When this final episode at Invergordon is considered, it will be recognized as something different. And here again there was no political motive.

The risings in the British Fleet of 1797 shook the whole country and exposed the Realm to the greatest danger. The events of the French Revolution had created a certain unrest in all European countries, and this may have encouraged the uprisings; but the real causes were so plain, and stand out so nakedly, that they themselves were sufficient to account for grievances of such magnitude as to cause the seamen to forget their allegiance and their duty. And yet the first trouble started in the victorious Fleet of Admiral Lord Howe, which three years earlier had won the great battle of the 1st of June.

War had been declared against us by the French Revolutionary Government in February 1793, and we were also already at war with Holland and with Spain. There followed a number of brilliant victories, including the Battle of St. Vincent only three months earlier. Lord Howe had given up his command to Lord Bridport, who, with the Channel Fleet, was at Portsmouth ready for further operations. Discontent was growing, and a certain number of petitions had reached Lord Howe, a very popular admiral, before he had hauled down his flag.

He had referred these petitions to a member of the Board of Admiralty—but neither had treated them very seriously. Yet

the reasons for discontent were not far to seek. Not only were the men badly paid, the rates having been fixed in the time of Charles II and never altered, though the cost of living had increased, but they were shamefully swindled. Thus the pursers received no regular pay, but lived on their pickings. One of their perquisites was to serve out the provisions, counting the pound weight as twelve ounces instead of sixteen ounces. The post of purser in a ship-of-the-line was worth about £1,000 a year, all made out of the sailors' pockets. Though there were many fine volunteer seamen, the crews had been made up to strength for war, partly by impressment, partly by the sweepings of the gaols. There was no means for redress of grievances, and discipline was harsh.

The trouble began on April 15th, 1797, when the signal was made to weigh anchor. The crew of the *Queen Charlotte* refused their duty, mounted the rigging, and gave three cheers, which was taken up throughout the Fleet. No violence was offered to the officers in the first mutiny at Spithead, and indeed they were treated with personal respect. And the seamen made it known that if word came that the French had put to sea they would immediately go out to meet them under the orders of the officers.

Pitt's Cabinet was panic-stricken, especially as the squadron at Plymouth also mutined. Earl Spencer, the First Lord, and other members of the Board went down to Portsmouth and, after a brief investigation and meetings with the delegates of the mutineers, promised that all the seamen's demands would be granted. But the crews refused to return to duty until a Royal Proclamation had been issued implementing these promises and pardoning the men themselves. Earl Spencer, the Tory First Lord, having returned to London, was interrogated in the House of Lords, and accused by the Duke of Bedford, who was apparently the leader of the Diehards of his day, of truckling to the mutineers and treating with them. Earl Spencer replied that he had not treated with the mutineers (which was a quibble), and, news of this getting to Portsmouth, the seamen believed they had been tricked, and there was a recrudescence of indiscipline, this time with some violence, owing to the resistance of certain officers. The Government, by this time thoroughly frightened, then

acted quickly, introduced a Bill into Parliament, running the gauntlet of the Whigs, who criticized them for leaving the seamen's grievances so long unredressed, and asked the Commons to vote the necessary sums to increase the pay and make better allowances for provisions. An attempt was made to stifle debate, but Charles James Fox, the leader of the Opposition, insisted on a full discussion, and finally the necessary legislation was passed through. The Cabinet and the Board of Admiralty certainly wobbled and gave the impression of weakness and indecision, for which the country paid heavily in the far graver revolt at the Nore, which followed almost immediately. Faced with a widespread movement of unrest and insubordination, a Government must either investigate and redress grievances or suppress the disorder. Wobbling only leads to more trouble. The mass of the people in the country seem to have been sympathetic to the Spithead mutineers, believing that they had substantial grievances and that the seamen had been badly treated.

Finally, the popular Admiral Earl Howe himself proceeded to Portsmouth, was received with great respect and affection, thoroughly discussed the whole situation with the men's delegates, and then, at their invitation, made a triumphal tour of the Fleet, accompanied by his Countess.

All the men's demands which were reasonable were granted ; but they insisted on certain officers who had made themselves unpopular being removed from the Fleet. With great reluctance Lord Howe agreed to this, and four captains, eighteen lieutenants and a major and four lieutenants of marines were removed. The seamen returned to their duty, and later, when the Nore mutiny was in progress, sent petitions to their comrades in the other commands advising them to return to their allegiance. For the reforms so hurriedly passed through Parliament satisfied them, and automatically applied to the whole service. Every man who had taken part in the trouble received a full pardon, and all the seamen in Plymouth and Portsmouth returned to their duty on the 14th and 15th of May. If the unfortunate debate had not taken place in the House of Lords and the Government and the Admiralty had not given the impression of wobbling, there would have been no further trouble. But many rumours had spread

to the other commands, and on the 10th of May the Nore mutiny broke out. It lasted a month, led to a good deal of fighting and bloodshed and many lawless occasions, and nearly precipitated a civil war.

The seamen were led by a certain Richard Parker, a man of some education, but of poor judgment. Their demands were similar, in the first place, to those of the seamen at Spithead, and some blame is attachable to the Board of Admiralty for refusing them out of hand. Then, as the mutiny spread, and even reached Admiral Duncan's squadron blockading the Dutch in the Texel, the Admiralty became frightened. On the 27th of May three members of the Board, Earl Spencer, Admiral Young and Lord Arden, proceeded to Sheerness to confer with the mutineers, carrying with them a Royal Proclamation of pardon if the men would return to duty, and promising that their grievances should be examined.

Unfortunately, sudden power had gone to Parker's head. He interviewed the Lords Commissioners at the head of a delegation of seamen, but deadlock was reached on the question as to whether the sailors should return to their duty first or negotiations be continued. And although promised by the Admiralty that the concessions agreed to in the Parliamentary Bill would be extended to them, they determined to continue their resistance. That night two of the men-of-war of the mutinous Fleet broke away from the rebellion, restored their officers to their authority, hoisted sail and cut their cables. And, although heavily fired on with cannon from the other ships, they made good their escape.

The mutiny was on the point of collapsing, when eight ships from Admiral Duncan's squadron in the North Sea sailed into the Medway and joined the mutineers. This gave the extreme party fresh hope and prestige; but on the 31st May they sent in a flag of truce and offered to come to terms if given two months' pay in advance, new clothing, of which they stood in need, and a pardon.

But now the Admiralty was determined to fight out the matter to a conclusion. A Royal Proclamation for the suppression of the mutiny was issued and sent to the Fleet. The mutineers,

previously disturbed, had now become desperate. The Fleet weighed anchor and remoored with the ships stationed right across the Thames, blockading London completely, and only allowing an occasional ship to pass with a permit signed by "Richard Parker, The President". Certain other merchant ships were seized and their stores and provisions appropriated—and all this at a time when the country was at war with three considerable naval powers, France, Holland and Spain.

There was panic in London, and the three-per-cent. consols fell to forty-five and a half. All this time the unfortunate officers were confined on board, though treated with some show of respect. And in the middle of these proceedings all the ships, by agreement, hoisted the Royal Standard and fired a 21-gun salute in honour of the King's birthday!

The mutineers now began to suffer from shortage of provisions and water. Parties of the seamen landed on the islands of Grain and Sheppey and seized cattle and sheep. The sentiment of the population on shore had now turned completely round and become increasingly hostile to the mutineers, though it is significant that the Admiralty dared not send regular naval squadrons against them and set about organizing a volunteer fleet, manned by non-naval seamen and middle-class volunteers; also a company of artillerymen, ordered to open fire from shore artillery on the Fleet, refused. But this latter was only an isolated episode, for troops were being poured into Sheerness and an effective blockade instituted from the shore.

On the 6th of June there were further signs of a collapse of the mutiny. Two of the smaller men-of-war broke away, though heavily fired at. But then, once more, four more ships from Admiral Duncan's squadron arrived, stimulated the revolt, and joined the rebellious Fleet.

One of the amusements indulged in was to make effigies of the Prime Minister, Pitt, who was unpopular, hang these dummies to the yardarm, and riddle them with musket shots. The people on shore saw this going on in the distance, and reported that the seamen were hanging and murdering their officers.

On the 6th of June, the day that the four ships from Admiral Duncan's squadron arrived, Lord Northesk, the Captain of the

Monmouth, asked leave of the Committee of Delegates to attend to his duty in the House of Lords. This was granted, and the opportunity was taken by the mutineers to send a letter to the King. This was delivered by Lord Northesk, who actually saw the King in company with Earl Spencer, the First Lord. The letter has never been published, but it is known to have contained an offer of surrender on terms which included the right of trial by jury for offences against naval discipline. The King and the Ministers decided to refuse all concessions, and a further Proclamation was issued calling upon the seamen to surrender and offering a free pardon to all who did so within a certain time.

Parker and the other leading delegates then made the final blunder which was their ultimate undoing. They suppressed the part of the Proclamation dealing with the pardon, only telling the crews that they were accused by the King of being rebels. But the news gradually leaked out; there was a split in the ranks of the mutineers; and an increasing shortage of provisions and water made the situation desperate.

The delegates then met together to decide on the next step. One proposal was that the Fleet should separate, certain ships to proceed, curiously enough, to Invergordon—the reason for this probably being that Parker had married the daughter of a Scottish farmer and that his own home was near there. Others were to go to the colonies. One delegate proposed that the Fleet should be handed over to the French, but the remainder would not hear of this for a moment. Nor would any of them agree to the alternative proposal of sailing to the United States and surrendering to the rebellious colonists. There are various accounts as to the final decision taken, but most of them point to the intention of sailing to Ireland, which was in a state of unrest, and either encouraging a revolt or throwing in their lot with the rebels.

On the 9th of June Parker made the signal to weigh anchor and proceed to sea. No vessel obeyed, and the mutiny was virtually at an end. That evening three more ships hoisted sail and deserted, though heavily fired at by the others, and four days later all surrendered, or signified their readiness to do so by hoisting a white flag in place of the red flag that had been the signal of mutiny both at Spithead and at the Nore. Parker

gave himself up on the 15th of June and, after court-martial, was hanged on board his own ship, the *Sandwich*, on the 30th of June. As many of the other ringleaders as could be laid hands on were tried and executed. The sequel was that on the 11th of October, 1797, when the same Admiral Duncan, flying his flag in the *Venerable* and commanding the same Fleet drawn from the North Sea and Nore squadrons and manned by thousands of the same seamen, won the victory of Camperdown.

The disaffection also spread to Admiral Lord St. Vincent's Fleet off Cadiz, and mutiny broke out in two ships, the *St. George* and the *Marlborough*. But it was instantly suppressed, and the ringleaders on board the *St. George* were seized, tried on the spot and hanged on the next day, Sunday, by the hands of their own shipmates, contrary to all naval use and custom—for an execution on a Sunday had been unknown before. The mutineers on board the *Marlborough* were also overpowered, but their shipmates refused to hang them. The Admiral took prompt action. He manned and armed the launches of the Fleet, the largest rowing boats carried in a man-of-war, mounted a heavy carronade in the bow of each boat, surrounded the *Marlborough* and threatened to sink her if orders were not obeyed. The signal for execution was given, and the mutineers were run up to the yardarm.

The squadron at the Cape of Good Hope mutinied, and the *Tremendous*, the flagship of the Commander-in-Chief, Admiral Pringle, was seized by the seamen. She was lying under the batteries of Cape Town, and the Governor, Lord MacCartney, took very prompt action. He lighted the furnaces in the battery, made the balls red-hot, prepared the guns, and sent a message to say that unless the red flag was hauled down he would open fire. The mutinous crew promptly returned to their duty.

Generally speaking, in this series of extraordinary events, little violence was offered to the officers. The exception was the frigate *Hermione*, in the West Indies, commanded by a notorious bully named Captain Hugh Pigot. He was a good fighting man, who had earned a reputation for desperate bravery under fire. But his whole system of discipline was brutal in the extreme, and it is little wonder that he drove his crew to desperation. The breaking point was reached when the men were aloft reefing

sails and he threatened to flog the last man down from aloft from the mizzen-topsail yard. The upper-yard men were always selected for their smartness and skill, and when the hands were piped down from aloft they would, ordinarily, be the last to reach the deck. The threat was, therefore, extremely unjust, but the seamen knew that it would be carried out, and in their panic to rush down from aloft three of them fell, and were killed on the deck at the captain's feet. He ordered the "lubbers", as he called them, to be thrown overboard.

The next night the crew rose in a body. They murdered the first-lieutenant and threw his corpse overboard, and then made their way to the captain's cabin and stabbed him to death with their knives. Then, in their blood-lust, they raged round the ship murdering every officer, except four juniors, among these latter the sailing-master, who, at that time, was the navigator of a man-of-war. They compelled him to navigate the ship into La Juayra and handed her over to the Spaniards.

The above is a brief account of the only serious mutinies, with the exception of the isolated incident of the *Bounty*, which have occurred in the long history of the Royal Navy. The Fleet went through the arduous campaigns with France and against Napoleon without any further serious failures of discipline.

A series of colonial expeditions and minor wars, of which the most serious was the Crimean War, witnessed no further outbreaks of discontent; while in the greatest test of all, the terrible events of the Great War, which included a revolution by one of our principal Allies, there was no case of a concerted refusal of duty, or anything approaching a mutiny, during those troubled years. And it must be remembered that the long-service men of the Navy had been diluted with many thousands of volunteers from all walks of life on shore. Indeed, a portion of the Fleet itself was engaged in active operations of war, although no war had been declared, against the revolutionary government of Russia after the Armistice and when the rest of the nation was at peace; and there was no sign of any refusal of duty.

On the other hand, there were serious mutinies in two of the navies of our Allies and widespread acts of concerted indiscipline in the British Army, once during the main land campaign in the

middle of the war; and on the second occasion after the Armistice, but before the war was officially over. Certain strong units of the French Army mutinied in the war area during a critical period of the campaign, endangering the whole Allied cause; and a French naval squadron in March 1919 engaged in active operations in the Black Sea in support of the "White" General Denikin, the official ally of France, revolted against bombarding Odessa and Sevastopol, then in the hands of the "Red" armies.

During all this troubled period the British Navy remained steadfast to its duty, often under most trying circumstances.

The two great Russian mutinies were in 1905 and 1917, and both, as stated, were political in origin, though in the 1905 revolts the seamen had some cause to complain, owing to the harshness of the discipline and to the bad food.

As I am about to refer to three mutinies in conscript navies, it will be of interest to examine the reason for the apparent prevalence of this form of rebellion. In order to turn landsmen into efficient members of the crew of a man-of-war during their two or three years' short compulsory service, it is necessary to pick out the quickest witted and best educated of the recruits available. Military service in infantry regiments does not call for the same degree of intelligence and understanding of machinery; nor is there the same need for individual initiative as on board a man-of-war. The rather slow-witted but strong and hardy peasant type of conscript can be drilled into a passable soldier, while the more intelligent townsman can be licked into shape as a sailor in a much shorter time, and with better results. But these same townsmen in the conscript countries are far more likely to have come under the political influence of revolutionary agitators.

Furthermore, a man-of-war must carry a large proportion of skilled artisans for the maintenance and management of the machinery on board, and such men, having entered at a later age, will, many of them, also have come under political influence.

To return to the Russian mutinies in the summer of 1905, it must be remembered that the whole country was in a ferment. The Russo-Japanese War had led not only to a great loss of prestige by the Imperial Government, but also to considerable hardships, through high taxation and stagnation of trade, amongst

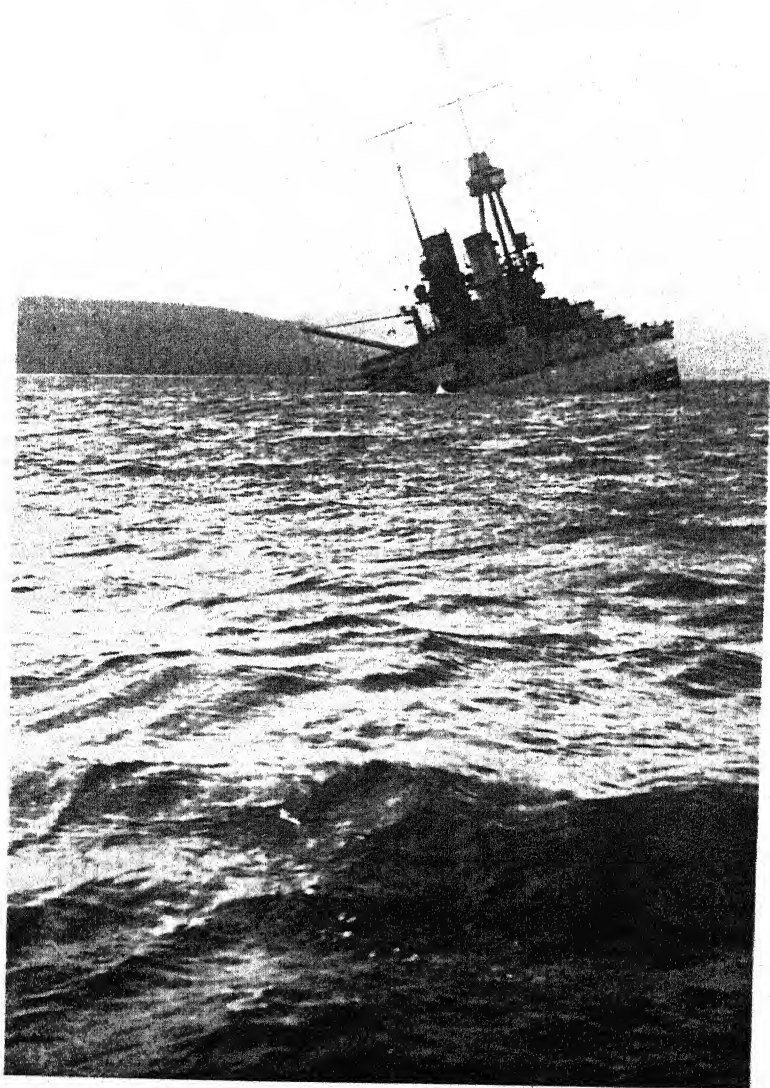
the civilian population. The constitutional reform government movement had been driven underground and had become revolutionary.

The mistake is frequently made in England of believing that the three Russian revolutions of 1905, and March and October 1917, were initiated by the Fleet. This is historically incorrect. The Russian Navy followed the example of the civilian population only to a certain extent. At Odessa, in the Black Sea, the battleship *Potemkin* and a torpedo-boat were seized by the crews, and, though the sailors of the other ships remained outwardly loyal, it was made plain that they would not fire on the rebels. The two revolting vessels were navigated by their petty officers out to sea through the lines of the anchored squadron, and, though there were some tense moments, no shots were exchanged. They proceeded to the mouth of the Danube and surrendered to the Roumanian authorities.

This episode aroused wide attention throughout the world, but there was a far more serious outbreak at the same time in the Baltic Fleet, of which little has been heard, thanks to a rigorous censorship. The mutinous sailors, assisted by revolting soldiers and artillerymen, seized the great fortress of Sveaborg, built for the sea defence of Helsingfors in South Finland, and held it against the Government for some weeks. This movement collapsed with the general petering out of the revolution, which was unsuccessful.

There have been many exaggerations about the 1917 revolt. This was, it is true, in the early part of the first revolution, when the Cadets and Constitutional Socialists seized power and overthrew the Czarist Government. But it was not started by the Navy, as is erroneously supposed. The trouble actually began in Petersburg, where riotous mobs took charge of the city, and the Cossacks and Imperial Guards called out to suppress them refused to fire on the people. This was the first vital step in a revolution which overthrew Czardom.

An attempt was made to prevent this news reaching the Fleet; but when it did filter through, the seamen were annoyed at having been hoodwinked, and there was a spontaneous rising, the crew seizing all the ships almost simultaneously. There has been



Imperial War Museum

GERMAN SUPER-DREADNOUGHT "BAYERN" SCUTTLED AT SCAPA FLOW



SURRENDER OF THE GERMAN HIGH SEA FLEET : PHOTOGRAPHED FROM DECK OF BRITISH DESTROYER

Imperial War Museum

great exaggeration also about a massacre of officers, no doubt put about for purposes of propaganda. It is true that some officers were killed; but this was because they had made themselves heartily disliked by their crews. Out of some 2,000 officers serving in the Baltic Fleet, thirty-five were killed at Helsingfors and thirty-eight at Cronstadt. The Black Sea Fleet was comparatively quiet. The remaining officers of the Baltic Fleet eventually threw in their lot with the revolution, the Fleet returning to duty and continuing to serve the provisional government under Prince Lvov and afterwards under Kerensky.

But when the Bolshevik agents got to work in the whole country, especially in the cities, and when the October rising took place in Petrograd, Moscow and other large cities, the navy threw in its lot with the Soviets. Indeed, the cruiser *Aurora* played a decisive part in overthrowing the provisional government, for she sailed up the river Neva to a position where she could command the Winter Palace with her artillery. There the provisional government was sitting, and a couple of shells from the cruiser's light quickfirers, aimed to fall in the garden of the palace, led to its surrender and the abdication of the Republican Government.

But, prior to this, in the summer the Fleet had been rallied and did good service against the Germans, beating off the combined sea and land attack in the Baltic provinces that was threatening Reval. Indeed, until the October rising, the Baltic Fleet showed the Germans that it was a force to be reckoned with. This was largely owing to the efforts of Captain Harold Grenfell, of the Royal Navy, Naval Attaché to His Majesty's Embassy at Petrograd. In April the Fleet was still in a state of indiscipline; and the sailors imagined that the war was over. Grenfell, ordered to Helsingfors to investigate the situation, was invited by the Russian officers to use his influence with their crews. The ships were frozen in the Gulf of Bothnia, but the ice was clearing and it was known that the Germans were preparing an expedition. Our Naval Attaché proceeded by sledge from ship to ship over the ice and addressed the crew of each vessel assembled on the quarter-deck, in Russian, in which language he was fluent. He pointed out that their comrades of the Royal Navy were looking

to them for further assistance in the war, that the war was by no means over, and that they still had to fight a German Imperialist and autocratic Government. He succeeded by his eloquence and tact in rousing them to such enthusiasm that the spirit of the Fleet thereafter and until October, when the whole Russian front collapsed, was higher than at any previous time during the war. The heavy veil of censorship and the tremendous subsequent events have obscured this very gallant single-handed action by one English naval officer, which had far-reaching effects and was undoubtedly one of the finest individual acts of bravery and good judgment of the Great War.

Nor in the case of the great mutiny of the German High Sea Fleet, a year later, is it accurate to describe the revolt of the German people as having been started by the German Navy. The German battle front in France and Flanders had been broken, the German armies, though retaining their discipline, were in retreat, and the "home front" had given way. The civilian population was seething with discontent, and the whole country was in a state of chaos. This was at the end of October 1918.

The Commander-in-Chief of the High Sea Fleet, Admiral von Hipper, decided, in consultation with the General Staff, on one last sortie in an attempt to inflict a defeat on the British Fleet and so to restore the position. It was to be a last desperate gamble. But the morale of the men of the German Navy had suffered, and their discipline broke. As a rule in these mutinies, both in the old and the modern navies, the trouble has started in the large warships. The smaller vessels, the sloops and gunboats in the sailing days, the destroyers and submarines in our time, have revolted last, or not at all.

So it was on this occasion. The destroyers and submarines preceded the Fleet to sea from Wilhelmshaven to take up their battle stations. Admiral von Hipper made the signal for the third squadron to weigh anchor and lead the High Sea Fleet out. The engine-room ratings of the *König*, *Markgraf*, *Kron Prinz* and *Kurfürst* promptly mutinied and drew the fires from under the boilers. The four ships affected signalled to von Hipper on board his flagship the *Baden*; but he could not believe that there was any widespread movement in the Fleet against authority,

and he ordered the ships to proceed. The engineer officers managed to rally their men and the squadron actually weighed anchor. But then the seamen in the first squadron mutinied. Still von Hipper did not give way, but ordered the destroyers of the twelfth torpedo division to surround his battleships of the first squadron. Emulating Lord St. Vincent off Cadiz, he let it be known that his destroyers would torpedo the rebellious battleships if his orders were not obeyed, and armed parties were sent on board to arrest the ringleaders. This was done, and the mutiny was squashed for the time being.

Admiral von Hipper then called a council of his junior admirals and captains, and it was here made plain that the Fleet was not to be relied upon, and that any idea of a general engagement with the British Grand Fleet must be abandoned.

As it was now urgently necessary to prevent the Fleet becoming revolutionary and a menace to the Imperial Government, the commander-in-chief decided to divide his Fleet up, sending one squadron to Kiel and another to Brunsbüttel, keeping his own at Wilhelmshaven. The Wilhelmshaven and Brunsbüttel detachments remained outwardly loyal, but the Kiel squadron gave a great deal of trouble. On arrival at their home port the men asked for leave and were granted it. On landing they found the great naval fortress town of Kiel in a turmoil, and in open revolt against the Throne. The seamen threw in their lot with the civilians and refused to return to their ships. The commandant of the fortress was requested by the admiral of the squadron to arrest leave-breakers, and he had a number apprehended. Then there arrived at Kiel three delegates from the Independent Socialist Party of the Reichstag. A stoker from one of the torpedo-boats, a man named Artelt, had constituted himself leader of the mutineers, and with him the three deputies got into touch. Claiming to represent the seamen of the Fleet, they waited on the commandant and demanded the release of the arrested men. The commandant refused.

On the following day, a Sunday, a large crowd of sailors, together with some of the garrison and many civilians, assembled and paraded the town. Admiral von Souchon, in command of the squadron attached to Kiel, landed patrols from the warships

to assist the commandant in keeping order and to instruct all seamen who were found to return at once to their ships. None of them obeyed, and then the marching, parading crowds suddenly began to sing the Marseillaise and to shout "Down with the Kaiser!" The patrols were disarmed, as were naval officers in uniform. One of the patrols landed from the torpedo-boat destroyer division showed fight, and opened fire on the crowd; but they were rushed, their rifles seized, and most of them killed.

The first torpedo division itself then mutinied, the men landing, storming the prison, and releasing the arrested leave-breakers. The soldiers of the garrison now revolted, seized the commandant of the fortress and shot him. The garrison and the sailors from the Fleet were thus in complete control of Kiel. Reinforcements of soldiers, hurriedly dispatched to Kiel to restore order, were either disarmed by the crowds or joined them. By this time there were in Kiel 80,000 soldiers and sailors in open revolt; and they established Soldiers' and Sailors' Councils on the Russian model. They actually arrested their admiral and kept him a prisoner for some hours. The situation was saved by Gustav Noske, a politician afterwards to become famous as a Minister in the German Republican Government, who placed himself at the head of the Soldiers' and Sailors' Councils, imposed discipline, restored order and declared for the Republic. But this was only one episode in the general revolution that was then raging through Germany.

When the High Sea Fleet, under the Armistice terms, steamed across the North Sea to be met by the Grand Fleet and to surrender to it, there was still considerable indiscipline in many of the ships. Little work was being done, Sailors' Committees and Councils were virtually in control, and all authority was very much weakened. It was a sorry end to a naval service that had fought with gallantry and efficiency throughout the Great War and, despite the excesses of the submarine campaign, had established a fine naval tradition for its country.

During all this period, with a strong revolutionary movement in Europe, during and after the war, there was not a symptom of any loss of discipline or morale or unrest amongst the men of the Royal Navy. The Fleet was gradually demobilized and reduced

to a peace footing, and began to assimilate and apply the lessons of the Great War. There were one or two minor incidents in subsequent years, minor acts of insubordination that became known to the general public ; and an episode on board the second flagship of the Mediterranean battle squadron, when the rear-admiral fell foul of his own flag-captain and executive officer on board his flagship, the *Royal Oak*, culminated in a court-martial which attracted a great deal of attention.

This, and other incidents to which I have referred earlier, and with which, owing to the importance of the subject, I shall deal in some detail later, point to a weakness in the machinery or method by which officers or ratings with a grievance are able to present it to the proper authorities ; and I believe the prime cause of the unfortunate events in the Atlantic Fleet at Invergordon in the autumn of 1931 can be traced to a feeling amongst the crews of His Majesty's ships and vessels that the machinery for the preferring of proper and reasonable complaints is faulty and inadequate, and that there is no surety of redress. It is, moreover, my belief, which is shared by many experienced naval officers, that a high state of discipline will only be preserved under modern conditions if officers and men, but especially the men, are perfectly satisfied that they have a means of making known grievances or complaints in a constitutional manner and that no penalty will be incurred by them in so doing. I also believe that the King's Regulations and Admiralty Instructions, which, based on the Articles of War, govern all methods of naval discipline, will have to be further amended if naval practice is to be brought into line with military practice in this respect.

If this had been done more thoroughly after the *Royal Oak* episode, when the then First Lord, Mr. Bridgeman, now Viscount Bridgeman, undertook that the regulations should be examined for this purpose, the events at Invergordon, which I am about to describe, would never have happened.

To be quite fair to the Admiralty, certain new orders with regard to the methods of preferring complaints were issued, and it is probably true that the old tradition, that it never pays to make a complaint, survives into a period when it is the honest desire of the Admiralty to see that no officer or man wearing the King's

uniform shall suffer from an unredressed grievance or have his future prospects damaged by making a grievance known.

In this connection it should be remembered that for many years the whole code of *military* discipline has been subject to examination and, on occasion, criticism in Parliament. We inherit from the Commonwealth and the reign of King Charles II a law forbidding the maintenance of a Standing Army, and this is still on the Statute Book. Every year, therefore, Parliament must approve the maintenance both of the Army and the Air Force; and in the annual Act for this purpose, the Army and Air Force Act, the whole code of military and Air Force law comes under the harrow of Parliamentary criticism. During my own Parliamentary experience I have known several long and interesting debates on Army discipline generally; and in certain cases the House of Commons has insisted, even against the advice of the Minister of War, on remodelling certain of the articles of the code. Such an opportunity hardly ever occurs in the case of the Royal Navy, and no Act of Parliament is required to legalize its position. When the Navy Estimates are discussed on two or three days in a year, the debates usually range over such subjects as the construction of warships, the strength of the sea-going Fleet, naval strategy and cognate matters, while questions affecting the welfare of the personnel and the special subjects of discipline are hardly ever raised at all. Indeed, such matters are usually ventilated by members for the dockyard towns; but then not in reference to the sea-going personnel but to the shipwrights and other skilled artisans in the dockyards, their conditions of labour, pay, and the like. Indeed, out of some thirty debates that I have heard in the House of Commons on naval matters, only twice has the question of discipline, as such, come up; and one of these occasions has already been referred to, when there was a short discussion on the insubordination on board the Atlantic Fleet at Invergordon.

As I mentioned in the foreword to this book, I believe the time has come when the Invergordon episode should be described in an impartial manner. That it has made an unfortunate impression on the public mind is, I fear, true; but even more deplorable is the fact that highly exaggerated accounts of this alleged

mutiny were flashed round the world, appeared in most foreign newspapers, and have never been corrected.

In theory, the concerted action of a large number of ratings to disobey orders and to decline duty is mutiny ; but if the reader, remembering my accounts of certain great mutinies in the past, both in our own and in other fleets, will now compare the particular events of 1931 with these, it will be seen that the Invergordon episode was in a different category altogether.

The best and truest description of it, is that it was a strike, spontaneously entered into by the crews of our principal Battle Fleet under a sense of bitter grievance, heightened by the suspicion that the Board of Admiralty were not really aware of the effect of certain pay reductions on the lower ratings, and especially on married men, and that no other means existed for bringing the facts home to their lordships.

In September 1931, financial difficulties, combined with the report of a Committee on Public Expenditure, known as the May Committee, led to the fall of the second Labour Government and its replacement by a National Government pledged to very drastic economies. The Rt. Hon. Austen Chamberlain, K.G., became the First Lord, and immediately, with his Board, set about effecting reductions in the expenditure on the Royal Navy corresponding to the reductions all round in other spending Departments of State, and it was judged that the easiest course would be to cut the pay of the officers and men.

The Atlantic Fleet had left its home ports and assembled in the Cromarty Firth off the town of Invergordon for the summer exercises, target practice, torpedo running, drills, etc. The first the men of this Fleet knew of the reductions, which were certainly very drastic, as is shown by their subsequent modification, was a wireless message pinned up on the mess-deck notice-boards.

The officers were as much surprised as the men. They had not been consulted, and I believe it is correct to say that no sea-going officers in command of a ship or squadron was asked his advice as to how reductions could be made in naval expenditure with the least hardship or loss of efficiency. The Board of Admiralty decided the pay had to come down, and that was the end of it. The officers had no opportunity of explaining to their men the

financial plight of the Exchequer and the reasons for the economies; and the Welfare Committees, which were set up for consultative purposes to advise the Admiralty on matters of internal economy, and which meet at the home ports, had not been called into consultation.

The most generous explanation is that the Admiralty were caught up in the general panic-measures to bring about economies on paper at all costs in order that the national Budget should be balanced, and in order that, in turn, the confidence of foreign financiers should be restored and the £ sterling retained on the gold standard. The Admiralty were told they had to act very quickly, and the readiest means of showing large naval economies was to cut down the pay of the officers and men.

The ships at Invergordon consisted of five battleships, the *Nelson*, *Rodney*, *Warspite*, *Valiant* and *Malaya*; two battle-cruisers, the *Hood* and *Repulse*; the light cruisers *Norfolk*, *York*, *Dorsetshire* and *Exeter*; the fifth and sixth destroyer flotillas; four submarines of the L class; the tenders *Lucia* and *Adamant*; and the gunnery training ship *Iron Duke*. The whole was nominally under the command of Sir Michael Hodges, who was ill in hospital, and was actually commanded by Rear-Admiral Wilfred Tomkinson, flying his flag in the *Hood*. It became known on the 11th of September, a Friday, when the Fleet returned from its exercises at sea, that there was grave dissatisfaction, and at one time it was considered advisable to put to sea again. However, the Fleet remained in harbour and leave was given on the Saturday afternoon and Sunday in the usual way.

The following table of pay of officers and ratings of the military branch will explain at a glance the cuts proposed:

	Old			New			Difference		
	£	s.	d.	£	s.	d.	£	s.	d.
Admiral	6	6	10	5	16	8		10	2
Rear-Admiral and Commodore	4	12	0	4	9	0		3	0
Captain	2	15	2	2	13	4		1	10
Commander	1	16	10	1	15	8		1	2
Lieut.-Commander	1	7	8	1	6	8		1	0
Lieutenant		13	10		13	4			6

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		Old			New			Difference		
		£	s.	d.	£	s.	d.	£	s.	d.
Sub-Lieutenant	..		9	2		8	10			4
Chief Petty Officer	..		8	6		7	6		1	0
Leading Seaman	..		5	3		4	4			11
Ordinary Seaman	..		2	9		2	0			9
Able Seaman	..		4	0		3	0		1	0

"Grog Money"—The allowance in lieu of spirit to be credited from October 1st at the rate of 15s. a quarter instead of 21s., and for broken periods, at 2d. a day instead of 3d. a day.

The stokers, marines and other branches were to have similar cuts. At first sight it would appear that officers suffered a smaller cut than the ratings, but I would explain that they had already suffered some cuts on the cost of living scale before this.

The ratings most hardly hit were able seamen and the corresponding privates of marines and stokers. Here there was a loss of 25 per cent. in the cash payments. Only a certain proportion of the able seamen ever expect to get promotion to leading seamen, and an even smaller percentage to petty officers. Therefore, for the majority of the men, able seaman is the highest rank they can expect to reach during their period in the service. They had entered the Navy on what they considered a definite contract, which, indeed, it was; and the cuts proposed certainly took the men by surprise.

Relying on their bargain, many thousands of able seamen had married, taken houses in their manning ports, and furnished them on the hire-purchase system. With strict economy they could just manage to build up little homes on the already low rate of pay, whereas the new rates would make the difference between solvency and bankruptcy. The discontent spread rapidly and found its manifestation on the Saturday afternoon in an indignation meeting held in the canteen on shore. The men returned to their ships that night; and the next afternoon the other watch were given leave. Many more men landed than usual at a place like Invergordon, where there are not many recreations or amusements, and they, too, held an indignation meeting in the naval canteen.

The officer of the patrol, hearing of this, entered with his

bodyguard of seamen and ordered the canteen to be cleared. He was picked bodily up and deposited outside ; and this was the only act of violence actually offered to any officer during the whole of this period. There was not room for everyone in the canteen, and the seamen, stokers and other ratings adjourned to the recreation ground. There the men immediately decided that they would not continue their duties under the new rates of pay proposed. One suggestion was that they should not return to their ships ; but finally they decided to return where they would be able to live, but not to go to sea. On the Monday morning, the 14th, the signal to weigh anchor was not obeyed. The *Valiant*, anchored near the harbour mouth, would have been the first to sail, and if her crew had obeyed orders the movement would have collapsed ; but after a few tense moments practically the whole of her seamen and stokers refused duty.

The crews of all the large ships assembled and gave three cheers, which were answered up and down the line, history thus repeating itself. A Strike Committee was formed, and drew up a letter to the Board of Admiralty in the following terms :

We, the loyal subjects of His Majesty the King, do hereby present to My Lords Commissioners of the Admiralty our representative to implore them to amend the drastic cuts in pay which have been afflicted on the lowest-paid men of the lower deck. It is evident to all concerned that this cut is the forerunner of tragedy, misery and immorality amongst the families of the lower deck, and unless a guaranteed written agreement is received from the Admiralty and confirmed by Parliament that our pay will be revised, we are resolved to remain as one unit refusing to sail under the new rates of pay. The men are quite agreeable to accept a cut which they consider reasonable.

In one ship the officers attempted to weigh anchor themselves, sufficient men obeying orders in the engine-room and stokehold to keep up steam ; but the seamen made it clear to them that they would immediately drop the other anchor, which is always kept ready for letting go.

The officers were helpless throughout the squadron. The crews performed the necessary work for sanitary purposes, the safety of the ships, and kept steam for the dynamos ; but they

refused to go to sea or to do any other duty until there was a promise of redress.

The acting commander-in-chief, preceded by various staff officers, went to London by aeroplane and explained the situation; and finally the Admiralty, with great though belated wisdom, gave way and agreed that the ships should return to their home ports, where the grievances of the crews could be looked into and the hard cases met. Even then there was some reluctance without assurances that the Fleet would actually go to the home ports and not to Scapa Flow or some other out-of-the-way anchorage. The officers, including the flag-officers, advised the crews to return to duty, promising that the Admiralty undertaking would be kept and pledging their own honour to this effect. This satisfied the men and they returned to their duty. At midnight on the 16th of September the Atlantic Fleet weighed anchor, put to sea, and proceeded to Portsmouth, Chatham, and Devonport. With one or two exceptions, where there was a lack of tact, which, however, need not be more particularly referred to, the majority of the officers sympathized in general with the men, and were able to rally them to their duty as soon as it was known that the grievances would be looked into and the crews had been satisfied on this point.

There was no political motive; agitators had no part in this episode; it was, as I have said, a spontaneous movement of indignation against a doubly felt grievance. The red flag was never hoisted; small parties of men in one or two ships sang the "Red Flag", but the majority of men in the ships knew neither the words nor the tune, and when the colours were hoisted in the morning the usual ritual and ceremony was observed and, in some cases, three cheers given for the King. The actual song used by the crews to keep up their spirits was the "Frothblowers' Anthem". In case any of my readers are unaware of the origin of this "anthem", I may explain that it is the special song of a charitable society known as the "Ancient Order of Frothblowers", founded by the late Sir Alfred Fripp, a well-known surgeon. The words of the chorus, to the tune of an old German drinking song, are: "The more we are together, the merrier we'll be."

The movement was almost entirely confined to the Atlantic Fleet, and it began in the largest ships. As usual, the smallest

ships were affected least of all. The slogan throughout the disturbance was : "We're fighting for our wives and children."

It will be of interest to note the effect of these incidents on the political and economic situation. I have already mentioned the highly exaggerated accounts that appeared in foreign newspapers. Some of the *Continental*, as well as the *American Press*, embroidered their news to such an extent as to make it appear that the people of Great Britain were on the verge of a revolution, and that the sailors of the Royal Navy were in the forefront.

Nothing could have been further from the truth. There were no concerted acts of insubordination in any of the other commands, and, from first to last, the Atlantic Fleet movement was devoid of political significance. There was one short debate in the House of Commons, where the official Opposition, though very much opposed to the whole policy of cuts in the wages and salaries of Government servants, made it plain that they were not condoning insubordination. Indeed, the whole sense of the British people is opposed to the bringing of the armed forces of the Crown into political controversy. The common sense of the great majority of the members of the Labour Party understood that if the officers and men of the Fleet were brought into the political arena, and insubordination condoned, with a Conservative or National Government in power, the day might come when, with a Labour Government ruling the country, agitators might attempt to use the Fleet in a Fascist movement.

Sir Austen Chamberlain, the First Lord, took the opportunity to declare in this debate that where it was shown that a particular class of ratings in the Navy would suffer exceptional hardships as a result of the economy measures, these would be looked into and a remedy provided. On the evening of this debate, the 17th of September, 1931, the Atlantic Fleet was actually proceeding to its home ports. Sir Austen Chamberlain explained that immediately on arrival there would be a full enquiry into the grievances of the men, to whom he promised redress. Finally, he declared that there would be no penalization of the men who had temporarily forgotten their duty, and that the past was the past.

This virtually ended a short but vitally important discussion in the House of Commons ; and the scene now shifts to the home-port commands. There, full enquiry was made into the position of the ratings generally, under the proposed cuts, and of the younger married men in particular. The result was that the proposed reductions were considerably modified. Thus under the old rates of pay the leading seamen were paid 5s. 3d. a day, but instead of this being reduced to 4s. 4d., the new rate is now 4s. 9d. The able seamen, the class most affected, were to have had their pay reduced from 4s. to 3s. a day, and the concession they received was that their new rates are 3s. 8d. a day, and after six years' service the able seamen now receive 4s. 1d. instead of the old rate of 4s. 6d. The same relative scales have been established for stokers, privates of marines, and other junior ratings.

The great majority of the 12,000 petty officers and men forming the crews of the Atlantic Fleet accepted these reductions, and discipline was restored. Only twenty-four ratings were accused of continuing to give trouble, and their services were subsequently dispensed with.

The only comment I will allow myself here is that these enquiries and adjustments should have taken place before a final decision was reached by the Board of Admiralty.

But the effect abroad was appalling. British credit had been shaken by various events which it would be outside the scope of this book to comment upon. Suffice it to say here, without going into the causes, that there was pressure on the rate of exchange of the £ sterling and foreign balances were being withdrawn from London. On top of this weakness came the greatly exaggerated account of trouble in the Atlantic Fleet. With renewed pressure the value of the £ was still further undermined, and finally the export of gold was forbidden, and Great Britain departed once more from the gold standard, with ultimate results impossible to foresee. Yet I firmly believe, and am not alone in this among naval officers who know the facts, that the whole trouble could have been avoided if more care had been taken earlier.

Now as to the broader issues of naval discipline. As I have mentioned above, the Army Regulations are still a good deal in

advance of the corresponding Naval Regulations where complaints by the rank and file are concerned. The governing Admiralty Instructions on complaints were drawn up in 1806 and are governed by the Articles of War. These were compiled only a few years after the great mutinies at Spithead and the Nore, which accounts for the special reference to the food supplied. The Articles of War read :

Every Person subject to this Act who shall have any cause of complaint, either of the Unwholesomeness of the Victuals or upon any other just Ground, shall quietly make the same known to his Superior, Captain, or Commander-in-Chief, and the said Superior, Captain, or Commander-in-Chief shall, as far as he is able, cause the same to be presently remedied ; and no Person subject to this Act upon any Pretence whatever shall attempt to stir up any Disturbance upon pain of such Punishment as a Court Martial may think fit to inflict, according to the Degree of Offence.

It is a fortunate fact that the cooking and victualling arrangements in His Majesty's ships are now so good that it is difficult to imagine any cause of complaint here, except possibly in very small ships ; and, as I have already mentioned, the smaller the ship the more of a happy family are the officers and crew.

But together with Articles of War must be read the Admiralty Instruction, number 9 in the latest edition. It is there stated that a petty officer or man who considers he has been treated unjustly may request to see the captain in order to make his complaint verbally. The regulation goes on to say

that his officer is to warn him that should there be no reasonable grounds for his complaint he is liable to be treated as having made a frivolous or vexatious complaint which is an act to the prejudice of good order and naval discipline.

This wording in the hands of an unjust officer can be a potent weapon to hold over the head of a seaman, or, indeed, an officer, with a grievance, however just. And it is a fact that there is an old tradition in the service—and these things die very hard—that anyone making a complaint is sure to suffer on that account sooner or later.

To show that this tradition of the inadvisability or indeed the wrongfulness of ever laying a complaint still survives and is a factor in the maintenance of discipline, let me draw attention to a famous court martial in 1928, which aroused a great deal of public attention. Amongst the evidence brought out was the description (not denied) of what the admiral, who was the principal witness for the prosecution, said to his own chaplain in the following circumstances.

The admiral, who had performed excellent service in his younger days, developed certain defects of temper with his promotion to flag rank and increasing years ; and these led to incidents which eventually resulted in the court martial I refer to. The chaplain, with a high sense of public duty, thought it right to wait upon the admiral and inform him, in a very respectful manner, that certain actions of his had created a bad impression in the ship, and were undermining discipline and lessening the respect all should feel for a flag-officer. The admiral immediately threatened him with court martial, and sent the unfortunate padre away with a flea in his ear.

Now compare the Admiralty wording, given above, with the official Manual of Military Law, note 5 to the 43rd section on discipline, which section describes the methods under which a soldier should lay a complaint, very similar to the Admiralty Instructions. The War Office Manual states :

A soldier cannot in any way be punished for making a complaint under this section, whether it be frivolous or not, and he ought not, for making a complaint, to be treated in any way with harshness or suspicion.

It will be seen that the War Office has rather endeavoured to instil a spirit into the Regulations which may encourage complaints, even if they are unjustified, than that any soldier should feel he is in any danger of reprisal for airing a grievance.

One of the first reforms that should be undertaken, I suggest, is to alter the wording of the Admiralty Regulations in such a way as to bring them into line with those of His Majesty's Army.

And there is another remarkable fact about the King's Regulations and Admiralty Instructions. When, after the terrible events of the *Nore* in 1806, the Article of War quoted above was drafted, it was accompanied by an Instruction which still stands; and it was on this Instruction that Captain Kenneth Dewar, of the *Royal Oak*, was court-martialled for sending in a letter of complaint to the rear-admiral, couched in rather blunt terms. "Every officer (or man) is strictly enjoined to refrain from making any remarks or observations on the conduct or orders of any of his superior officers which may tend to bring into contempt", etc. And then followed this addition, which a reactionary Board of Admiralty of 1824, when revising the Regulations, omitted:

This [instruction] is not intended to prevent any officer or any person whatever from taking such measures as the custom of the Service allows to obtain redress for any injustice or injury done to them as directed by the 7th article of these Instructions or protection from Tyranny or any oppression he may suffer by the conduct or orders of his Superiors.

These words, inserted after the *Nore* and Spithead mutinies, were erased and cancelled eighteen years afterwards! It would, I believe, be for the good of the service, if this addition to the Regulations, omitted in 1824, were restored to the Naval Code of Discipline.

There is another difference between naval and military law. The official Manual of Military Law contains very full notes explaining the custom of the Army service and other useful information. And this Manual is an official publication and can be quoted at a military court-martial. But there is no official Manual of Naval Law. There is an unofficial volume which is recognized in the service, but it cannot be cited at courts-martial or courts of enquiry.

Furthermore, there is a rather wider right of appeal in the Army. Thus an officer or soldier in a regiment can appeal from his colonel to the brigadier; whereas an officer or man in a ship has no right of appeal to the admiral commanding the squadron unless he writes a letter of complaint; and then the matter may

only be dealt with by correspondence; and another of the ancient traditions of the Navy is that anyone who writes a letter of complaint is only stirring up trouble for himself.

Every man-of-war is usually inspected once a year by the admiral commanding the fleet or squadron in which she is serving. There is, first, an elaborate round of inspection both of the ship and her crew; and the men are then mustered by the "open list", that is, the ship's books are displayed and the crew marches past the admiral in the order in which they appear on the ship's books. This is a survival from the days when one of the scandals was to maintain men on the books when in fact they did not exist, and for the purser to draw their pay and provisions.

After this the hands are piped to "clean into" working rig, and various drills and evolutions are carried on under the admiral's eye. And during the hectic ten minutes or so in which the crew are donning their white duck suits for strenuous exercises the word is piped round the ship that anyone with a complaint is to lay aft and see the admiral. I have known cases of ratings who have availed themselves of this opportunity; but it is a very bold man who will do so. Yet in practice this is about the only opportunity there is for a rating who has a grievance to appeal over the head of his captain, unless he goes through the formality of writing an official letter, which necessity in itself would daunt all but men of the strongest characters suffering from very real grievances indeed.

There surely ought to be some better method for flag-officers to satisfy themselves that all is well with their commands. From what I know of the senior officers of the Navy, the last thing they would desire is that even the most subordinate rating under their command should be suffering from any real grievance. Yet how are grievances to be redressed if there is no machinery for doing this? Nor must it for a moment be imagined that the great majority of officers and petty officers are not desirous that the men under them should be happy and contented. Yet the senior officers, especially, do not always know what is going on; and here and there a martinet, or a person temperamentally unfitted for command, is in a position of authority, and the result is injury to the discipline and spirit of the service.

I suggest as another useful minor reform the drawing up of a simple set of rules in a small book, showing in plain language the duty and the right of every newly entered stoker, boy, or other young rating. This should be issued on joining the training ship or first sea-going ship in the case of those ratings who go straight to sea, and the rules should lay down quite clearly the right of appeal against injustice or oppression and the safeguards that do actually exist in the King's Regulations and Admiralty Instructions against ill usage. For the Instructions themselves make up a voluminous book, or, rather, two large volumes, which is not readily available to any man on the lower deck. We do not want to encourage the "sea lawyer", nor the making of frivolous and unnecessary complaints; still less do we want to engender any spirit of grouching in what is, after all, a fine service with many splendid traditions; but it is better to err perhaps a little on the side of encouraging young men to approach their officers with just complaints or grievances than that, even in only a few cases, discontent should smoulder beneath the surface.

And a word also with regard to the naval courts martial. These are well conducted, justice is almost invariably done, and the members of the court are always senior officers who fully understand the life and conditions of the service. Furthermore, all court-martial decisions are reviewed by the legal experts at the Admiralty, as already stated, and frequently sentences are reduced, and, in some cases, quashed where the evidence is adjudged faulty or for other reasons. But a court martial is the ultimate resort for the maintenance of discipline, or the correction of error, or the punishment of crime. Indeed, all punishments, at any rate for the serious offences, are, and certainly should be, looked upon in the Royal Navy as the ultimate sanction.

Discipline depends, in the first place, on a real understanding between those who give orders and those who have to obey them. But the whole system of discipline must be such that where there are grievances—and in a great service under strenuous conditions like the Royal Navy these are bound to crop up from time to time—there should be adequate means for their redress, and this the men of the lower deck should believe to be the case. It

is not, after all, what happens, but what the men themselves think may happen, that counts. And I believe that if a better custom with regard to the redress of grievances and complaints had grown up in the service in recent years, the episodes at Invergordon which I have described would never have occurred.

CHAPTER IX

NAVAL PORTS AND BASES

Importance of bases to a navy—Alleged American lack of bases—Naval stations in Britain—The Irish harbours—Bases on the Suez Canal and Cape routes to India—Germany's lack of overseas bases in the Great War—Gibraltar—Not now impregnable—Proposed exchange—Malta—Danger of air attack—Cyprus—Suggested "deal" with Greece—Importance of Haifa—Aden—How we got Perim—India and Ceylon—Lack of large docks in Asia—The Singapore base—Arguments in favour of Sydney—Temporary bases—Coaling stations in the Atlantic—Bermuda—Should it be maintained?—American susceptibilities.

In the various International Conferences on naval strength, and during the arguments on methods of limiting armaments by agreement, much has been heard about naval bases and fuelling depots overseas.

It is an important subject, because the United States naval authorities always point to the multitude of well-placed and strategically important naval ports at the disposal of the Royal Navy as an added strength to our Fleet. This is perfectly true. But on this supposition the American naval authorities have based a series of claims, of which we shall hear more in the future, such as the necessity for keeping up the very large tonnage for dreadnoughts, which means great extra expense. For to the original cost of construction must be added the annual charges for upkeep of these huge vessels, and the large docks and other facilities required for their repair and maintenance.

Furthermore, the United States naval authorities have tried, and in the future will try again, to insist on a very large type of ocean-going cruiser. Even France, though second only to our own country in the possession of overseas naval bases, uses this argument in defence of the building of her large ocean-going

submarines, in reality submarine cruisers, capable of being used on the distant trade routes, in case of war, with deadly effect.

The British Admiralty has in the past been far-sighted in establishing coaling-stations and overseas dockyards. For long they resisted the introduction of the marine steam-engine, as I have described in earlier chapters ; but, once having taken the plunge, we were careful to see to it that there were plenty of suitably placed coaling-stations throughout the world. And, now that heavy oil fuel has replaced coal, probably for ever, much money has been used in building tank storage and oil-fuelling facilities at these same overseas bases.

The American Navy, now that the principle of parity with the British Navy has been agreed to, is only moderately supplied with overseas bases. Her colonial possessions, or protectorates, comprise the Philippines and Honolulu ; and, except for a few scattered islands in the Pacific, that is all. There are, however, adequate reasons for this disparity in bases. For example, the United States has never attempted to influence policy in the Mediterranean, except to help suppress pirates ; she has not a great Indian Empire to defend ; she came late into the field as a leading naval power ; and it was against the policy of the elder statesmen of the Republic in the past to embark on colonial adventures.

Before I proceed to an account of the overseas bases of the Royal Navy I will describe, briefly, the secondary naval ports in our own country. In the chapter where manning and conditions of service are described, I referred to the three home ports—Portsmouth Plymouth, and Chatham—which, as their names imply, are the three “general headquarters” of the Royal Navy, with shipbuilding and repairing facilities, the training schools, manning barracks, the hospitals, the prisons and all the other paraphernalia and establishments required by a great navy. The other ports are strategical.

It is necessary in these days of submarines and other torpedo-carrying craft to have harbours in which the Fleet may lie without being exposed to attack, but also from which it can proceed to sea quickly. Portsmouth and Chatham are congested, and the

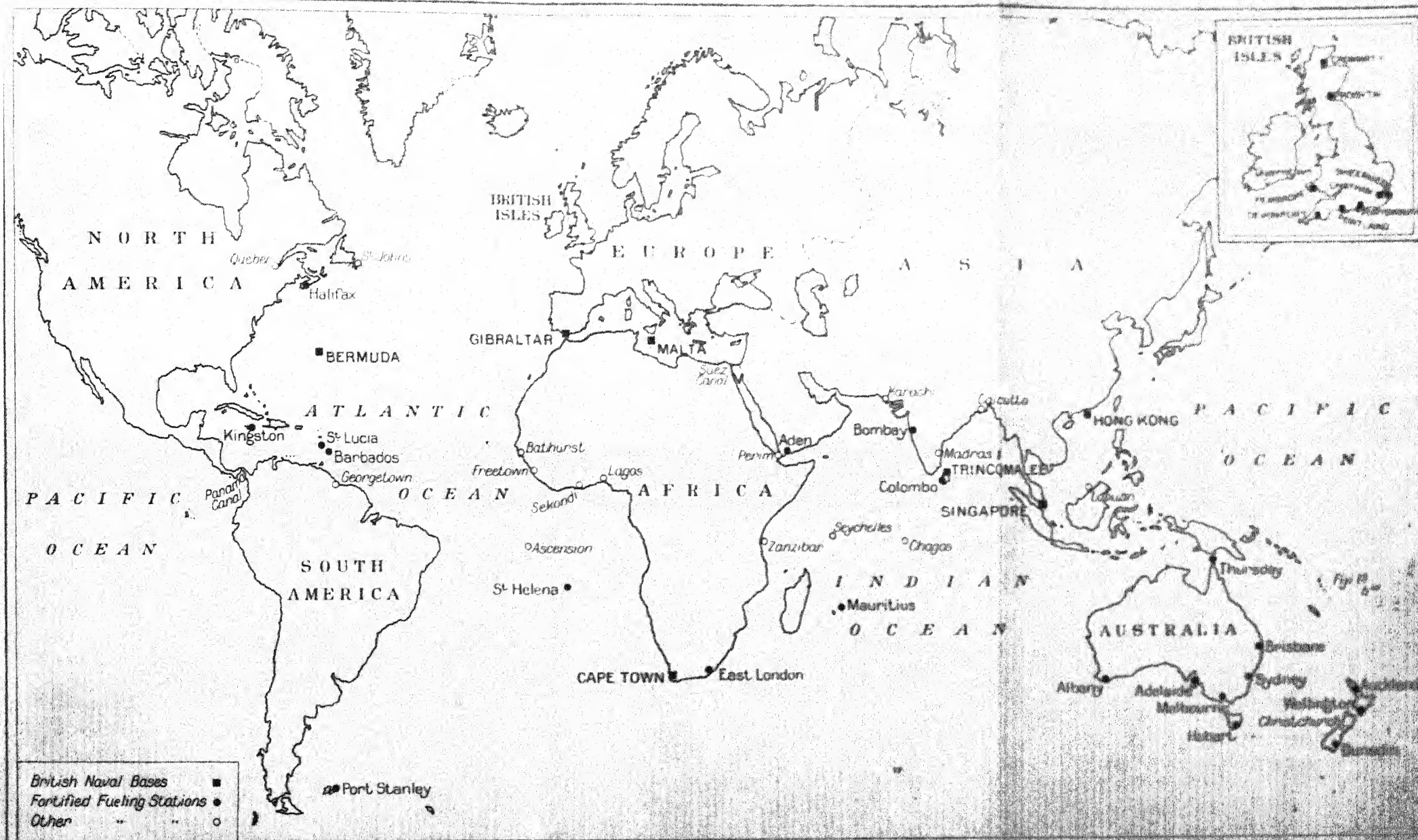
largest ships can only leave Chatham at certain states of the tide.

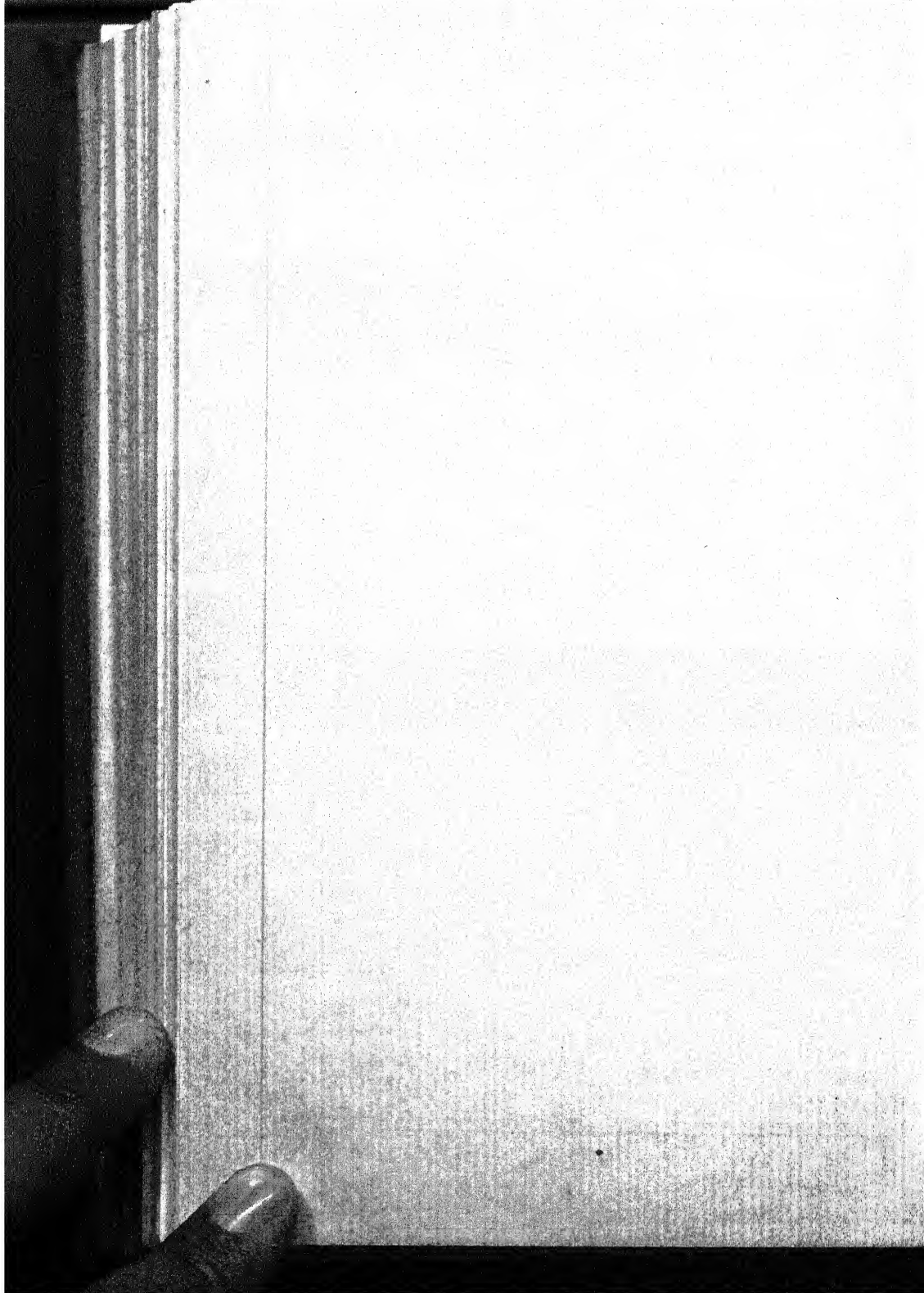
Before the invention of the torpedo Spithead was an ideal war anchorage, or place of assembly in peacetime, for a large fleet. But with the growth of the torpedo menace the Admiralty provided two safe harbours in which considerable squadrons can lie. Portland harbour, with its huge breakwaters built by convict labour, is one of the finest naval harbours in the world, but has only meagre repair facilities. Nor is a dockyard, in the accepted sense, required here. Dover is another all-weather harbour, well protected against torpedo attack. Haulbowline dockyard at Queenstown, in the south of Ireland, is of great strategical importance, but is a dockyard and repairing depot as well, and used to be the headquarters of the Irish command. It is a magnificent natural harbour. With the establishment of the Irish Free State, Haulbowline has been reduced to a mere skeleton, with only a care and maintenance party, as it is called, in charge to keep the equipment in order.

The old Channel Fleet utilized the magnificent harbours to the west of Ireland for training purposes; but these are practically undefended and have no repairing facilities to speak of. The three best known are Berehaven in the south-west, Galway Bay in the west—which, if ever there should be a naval campaign in the Atlantic, will be of the greatest strategical importance—and Lough Swilly in the north. The last named of these three magnificent natural harbours was actually used by the Grand Fleet when, at the beginning of the Great War, it was suddenly realized what a potent menace the torpedo was and what a wide radius of action was possessed by submarines. These Irish naval harbours are, however, little used nowadays.

Milford Haven, in the south-west of Wales, had a naval dockyard and repairing depot at Pembroke which made its natural advantages even more valuable; but in the interests of economy the dockyard at Pembroke has been abolished, and Milford Haven is now only a seaplane base on a small scale.

On the east coast of Great Britain the Firth of Forth is an excellent war harbour, the largest of fleets being able to lie above the Forth Bridge; and the bridge, with the addition of nets and





booms, is itself a defence against submarine attack. In the later stages of the Great War it was the main station of the Grand Fleet.

Cromarty Firth, on the shores of which is the town of Invergordon, which 99 out of 100 persons had never heard of until certain breaches of order occurred there in 1931 (fully described in the chapter on naval discipline) has also a fine natural harbour capable of accommodating a very large fleet, and with a narrow entrance. It is used as a training station, ships going there for their exercises, there being little merchant shipping in the vicinity; and it has recreation grounds for officers and men on shore, a naval canteen, etc. And finally, in the Orkneys, off the north coast of Scotland, is the small inland sea known as Scapa Flow, surrounded by the islands of the group, with three narrow entrances and of such a size that all the navies of the world can lie there securely at anchor. It is a desolate spot, with depressing surroundings; and here it was that the German High Sea Fleet was interned after the Armistice and during the time that the politicians and experts were arguing in Paris as to what was to be done with it.

Its self-destruction by sinking was a blessing in disguise; for this fleet, the second navy in the world, if distributed amongst the Allies, would have upset the balance of naval power, already precarious. I had entered Parliament by this time, and I remember being telephoned early one morning by a newspaper reporter who told me the news of the sinking of the German Fleet. He described how the crews had opened the sea-cocks, and probably the torpedo-tubes too, in order that the great warships might fill with water and sink. He asked me what comment I had to make, and I replied that if he knew Scapa Flow as well as I did he wouldn't wonder at the Germans doing this.

So much for the harbours and stations used by the Royal Navy in home waters, except that at Newcastle-on-Tyne and the Clyde are great private shipbuilding yards which could be used, and have been used, for the repair and refitting of warships as well as for the building of some of the finest ships that have ever left the stocks.

Proceeding eastward, there is a regular chain of coaling and

oiling stations, some of them with considerable repair facilities, all the way to China in the East and to Australia in the South.

The British Navy is well provided with its own bases *en route* for India, either by way of the Suez Canal or round the Cape of Good Hope.

Two examples will show the tremendous importance to any fleet of having its own fuelling stations in time of war. Thus during the Russo-Japanese War, when Port Arthur was besieged and blockaded by the Japanese, the Russian Government desired to send the Baltic Fleet to reinforce its power in the East. This was a perfectly sound strategic move; but in the absence of bases, and despite the friendly neutrality of the French, the Russians had the greatest difficulty in moving a large fleet over this distance together with its great flotilla of store-ships and colliers. It was done eventually, a great feat of seamanship and organization, by the ill-fated Admiral Rogestventsky, who perished in action in the Straits of Korea at the battle of Tsushima; but the operation took so long that, by the time the Baltic Fleet arrived in the Far Eastern waters, Port Arthur had fallen. They intended to make Vladivostok, but were destroyed on the way.

The other was the case of Germany in the Great War. Her few oversea bases were either captured or blockaded from the very beginning of the campaign, and her detached cruisers abroad were then "in the air". This greatly simplified the task of the Allies of trade protection in the outer seas.

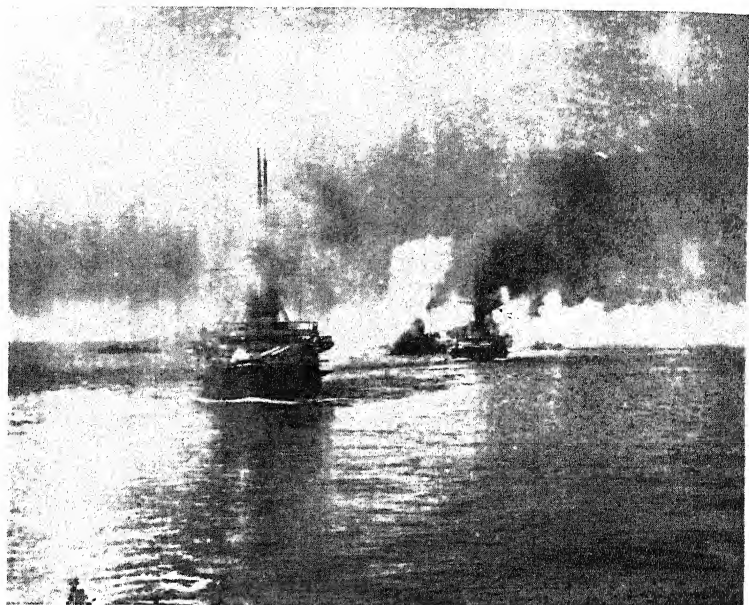
If the Germans had had more naval bases capable of defence and of supplying their raiding cruisers, and later on especially the submarines, when submarine attack on commerce had developed, the British task of commerce defence would have been almost impossible. It must be remembered that the laws of neutrality are very strict; and though a cruiser may enter a neutral port for immediate necessities such as coal, water and provisions, she can only use the same port once without risking the neutrality of the country in which it is situated; and acceptance of any attempt to use a foreign neutral port as a base of operations for a cruiser campaign would be looked upon as an act of war on the part of the neutral by the other belligerent or belligerents.

Proceeding to the eastward, then, from England, the first

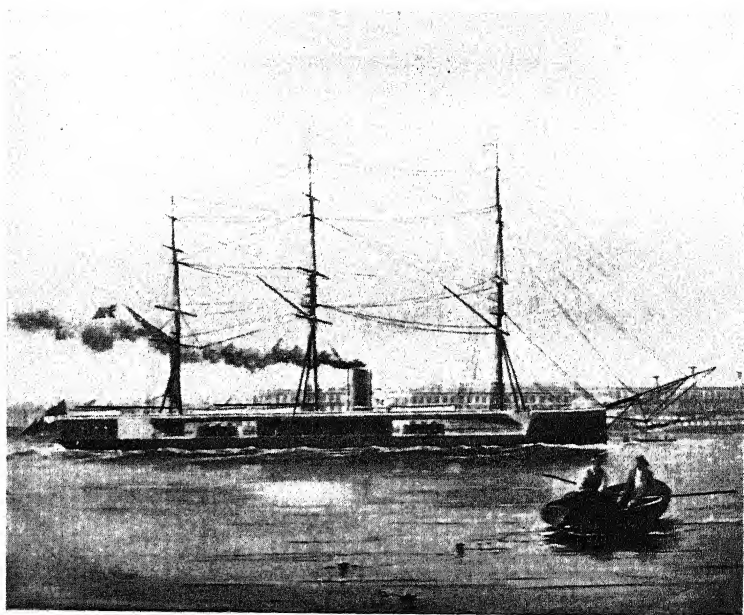


Cribb, Southeast

DIVER PREPARING TO "DIP"



[Cribb, Southsea



[Imperial War Museum

Above : BATTLE PRACTICE : DESTROYERS PASSING
THROUGH OWN BATTLE LINE AFTER AN ATTACK

Below : H.M.S. "CAPTAIN", FIRST TURRET SHIP BUILT FOR THE ROYAL NAVY

naval base of importance is at Gibraltar. Its alleged invulnerability to assault has become a household word. This was true enough in the days of smooth-bore cannon, but with modern artillery is far from being the case.

Gibraltar is a strong fortress, but only so long as Spain is friendly, and with Spain hostile the dockyard would become untenable. It can be commanded from the hills in the Spanish hinterland or from the other side of the Bay of Gibraltar, which is Spanish territory; indeed, when the new docks were built, which will take large ships for repair, it was seriously suggested that they should be constructed on the east side of the peninsula, instead of in the Bay of Gibraltar, as was finally decided.

As a matter of fact, it would have made little difference; for the dockyard and harbour can now be bombarded by long-range artillery mounted on the African side of the Straits of Gibraltar. And a dockyard exposed to artillery fire is useless in war.

Another proposal has been to make an exchange of Gibraltar for the Spanish port and fortress of Ceuta on the African coast, together with a piece of territory round it. But it would be very expensive to make the change, and I doubt if this will happen. With a friendly Spain, however, Gibraltar is safe enough and commands the western entrance to the Mediterranean. This means that Britain at war with any Mediterranean Power, with the exception of Spain, could secure the passage of the Straits of Gibraltar to its own shipping but deny them to the shipping of the enemy. As soon as England began to develop as a great naval power, three hundred years ago, strenuous efforts were made to obtain a footing in the Mediterranean. Tangier was seized, fortified and held for some years for this purpose. But there was never time to construct a safe harbour there, and eventually the British withdrew under continual pressure from the Moors.

The holding of Minorca was another attempt to keep a footing in the Mediterranean; but now the principal fortress, arsenal and dockyard is at Malta. Long held by the Knights of St. John as a base against the Saracens and Turks, it was taken by Napoleon, partly by surprise, partly by treachery, recaptured by the English, and held ever since. There are two excellent and safe harbours; the island is strongly fortified, and is the principal base for the

Mediterranean Fleet. It is now being gradually developed as a seaplane base ; and, indeed, its defence by air is becoming a serious problem. For in the event of war, with Italy hostile, Malta would have a very bad time from the Italian aeroplane squadrons flying from the mainland of Italy and from Sicily.

For some years we held Corfu, of great strategic importance, at the entrance to the Adriatic Sea ; but it was handed over to the newly liberated Greek nation during the premiership of Mr. Gladstone.

The island of Cyprus contains no good harbour and is not now of great importance strategically. It remains, however, a British possession, partly because of an old agreement with France under which we undertook to hold it as long as the French maintain a Protectorate over Syria. There has been, in recent years, an increasing nationalist movement amongst the Cyprian Greeks for union with their mother country. One of the proposals canvassed has been that in return for self-determination for Cyprus—that is, a majority of the inhabitants being allowed to effect union with Greece—the Greek Republic should allow the perpetual use, by treaty, of the excellent harbour of Argostoli in the island of Cephalonia. This harbour commands the entrance to the Adriatic. An added complication, however, is the existence of a Turkish minority in Cyprus who are apprehensive of their treatment by the Greeks when the British withdraw their control ; and in these days any British Government with an eye on India is particularly tender of Moslem susceptibilities all over the world.

A new harbour, which will make a first-class naval base, is being constructed in the Bay of Haifa in Palestine. This is needed, primarily, for commercial purposes, as Palestine has no good port. The Bay of Haifa makes an excellent anchorage, but is exposed to certain winds. A long stone breakwater, therefore, is being constructed ; and when finished Haifa will be one of the best harbours in the Mediterranean. It will also be the seaward end of the pipe line to carry the oil from the new fields of Mosul in the north of Iraq, and perhaps the seaward end of a railway to Baghdad.

Here, then, will be a new naval base and oiling station ready

made, of great potential value to the Royal Navy and its allies. We have World Jewry, with its Zionist programme, to thank for this excellent and valuable addition to our naval resources.

The Suez Canal is nominally in Egyptian territory, though under British protection. But at the other end of the Red Sea is the very important coaling and oiling station and fortress of Aden. It commands not only the Red Sea but the Suez Canal.

British diplomacy, ever since the cutting of the Suez Canal was mooted, has been careful to prevent any other Power from establishing a naval station in any part of the Arabian Peninsula, and especially the Red Sea.

In the centre of the Straits of Bab-el-Mandeb is the island of Perim, the southern entrance to the Red Sea, also a British fuelling station. During my time in the Navy I visited some very hot parts of the world; and the hottest (climatically) I know is the Island of Perim. It is a small island with a land-locked harbour in which there is room for only one or two big ships, and is situated at the very entrance to the Red Sea. Nothing grows on this island at all, no trees or bushes, not even a blade of grass.

Because of its position, it is of great strategical importance. It is a British possession, and the story of how we acquired it is interesting. We had held Aden for some years, as being at the entrance to the Red Sea, and also on the line of our route to India. One day the garrison at Aden was surprised to see a French cruiser enter the harbour. The captain of the cruiser called on the governor, who found he was an old friend of his, and usually a very talkative person. But on this occasion he was extraordinarily reticent, and the governor couldn't get out of him where he was going or what the purpose of his journey was. With his suspicions thoroughly aroused, but determined to probe the mystery, he insisted on entertaining the French naval officer at dinner. Eventually, under the influence of much champagne and old brandy, it leaked out that the foreign warship had orders to annex the Island of Perim, which then belonged to nobody in particular. Managing by the charm of his conversation and the interest of his stories to keep his guest, the governor wrote a note privately to the captain of his steam-yacht telling him to raise steam at once and annex the Island of Perim. Finally the French captain

left, managed to get down to his steamboat in waiting for him, and found his ship all ready to sail. They left at once and arrived at Perim at dawn, only to find the British flag flying and a small British force in possession, which refused to be ejected.

The island has a small store of coal and oil on it, and I remember anchoring there after a very long cruise across the Indian Ocean during which we had been living on salt provisions, and going ashore to the club which the three or four Englishmen on the island had established, including the officers of the small garrison, and looking forward to a change of diet and fresh food. The few residents were delighted to see us and gave us a fine welcome. But, alas, the dinner we had, including the soup, the fish, the meat and the fruit, all came out of tins; in fact, they were no better off than we were.

The small garrison of Perim is commanded by a lieutenant of the Army, and it used to be a sort of punishment post. That is, an officer who had committed some indiscretion would be sent to Perim for a year, where he had under him fifty Indian soldiers and a white sergeant. A certain officer, some years ago, was sent to Perim under these circumstances, and, to the astonishment of the War Office, towards the end of his time he applied for another year's extension. Delighted to find somebody who apparently enjoyed being at Perim, the War Office granted this application. But at the end of the second year, when a renewed application for a further extension was received, suspicions were aroused, especially as the Adjutant General of the Forces was almost certain that he had caught sight of someone exactly like the officer in question the week before at Ascot races! A telegram was accordingly sent to Aden to send a senior officer to inspect. The fifty native soldiers were there and the white sergeant, but no commanding officer. The fact of the matter was that the gentleman in question was there when the annual inspection took place, and spent the rest of his time very pleasantly in England.

Barren as this place is, I have never known such riches in fish as in the waters surrounding it. The fish swarm, of all shapes and sizes, and of the most beautiful and varied colours.

We have an exercise in the Navy known as creeping and

sweeping. "Creeping" is hauling a special hook along the bottom of the sea in search of enemy submarine cables. On a cable being hooked a small charge of guncotton attached to the hook is exploded and the cable cut.

"Sweeping" consists in hauling a kind of submerged net, to which are also attached charges of guncotton, and this is used for finding and exploding enemy mines. These exercises are carried out once in three months, and as we were due for these exercises, and seeing the tremendous quantities of fish in Perim, we thought we would carry out our quarterly creeping and sweeping practice. In these practices the charges are actually exploded under water. As soon as the charge of guncotton was exploded the surface of the sea was literally covered with stunned fish, from thirty-foot sharks downwards. We filled up four large rowing boats, the sailors only taking those with scales and rejecting those without, in accordance with an old superstition. We caught enough fish by this novel method of angling to feed the whole ship's company of eight hundred men, and it was a most welcome change after our diet of "salt horse" and pickled pork.

Britain is the only naval power with a foothold in the Arabian Gulf, and we have always taken care to prevent any other maritime nation acquiring territory there. Bombay is an important naval station, and the headquarters of the old Royal Indian Marine, now to become the Royal Indian Navy. But in the Crown Colony of Ceylon is the coaling and oiling station of Colombo and a small dockyard at Trincomalee. The southernmost point of Ceylon, Point de Galle, is an important "landfall", and one of the most important strategic areas in the Seven Seas.

East of the Suez Canal, there is no large graving dock capable of accommodating the largest of our ships-of-the-line. The modern dreadnought is so wide in the beam, on account of the under-water protection required for defence against the explosion of torpedoes, that the ordinary large dock, suitable for big liners and other merchant ships, is not wide enough to take a large warship.

A graving dock is made of stone or concrete and filled with water; the ship requiring repair under water is floated into it,

and then, the entrance being closed with a caisson, the water is pumped out and the ship rests high and dry in the dock. This is the process known as dry-docking.

Another type is the floating dock of steel. It is submerged by filling its tanks with water, and when the ship is in place the tanks are emptied and the dock rises out of the sea, lifting the warship with it. A large floating dock has been towed out to Singapore, where it now is, and it can take the largest ship in the British Navy. After the Great War the lack of docking accommodation for the largest warships in Eastern waters engaged the attention of the Admiralty.

There was, and is, much to be said for developing Sydney, Australia, into a first-class naval dockyard as an alternative to Singapore. The present intention is to complete the Singapore base and either to station the present Mediterranean Fleet there as a Pacific Fleet, or else to keep a large Mediterranean Fleet based at Malta and hold the Singapore base in readiness to receive it, should the political situation require the presence of a large fleet of battleships and attendant craft in the Far East.

Successive Governments at Westminster, ever since the plans for Singapore were decided upon in 1920, have, after hesitations, decided to proceed with the scheme; though the work has been slowed down and the total cost reduced for the time being.

Nevertheless, the case for Sydney as an alternative remains. And it is strengthened by the possibilities of the limitation of armaments by international agreement; for if no more large battleships are to be built—and this is one probable agreement for the future, if not immediately—and the size of all new warships to be curtailed (which would not be to the disadvantage of the British Empire), Singapore will be a "white elephant", and most of the money will have been wasted.

The existing cruiser base could have been brought up to date for less than a tenth of the cost of the present scheme. On the other hand, if money had been spent on Sydney in providing extra docking and repairing facilities, it would not have been wasted, even if no more very big ships are built for any of the world's navies, for the facilities would have been useful for the maintenance of ocean liners and large cargo steamers in Australia.

And although Singapore is an important commercial port, it is only a port of call on one of the great trade routes. Sydney, on the other hand, is a terminal port. And it is at the terminal ports that extensive commercial docking facilities are most useful.

The following are the arguments that can be advanced in favour of Sydney as the headquarters of British naval strength in the Pacific. Sydney stands on the shores of one of the finest natural harbours in the world. It already has considerable sea and land defences, which, if strengthened in view of its increased importance on being made into a first-class naval port, would automatically defend one of the principal cities and centres of wealth in the sub-continent. A naval dockyard is already in existence, in which all but our latest and largest vessels can be taken for docking purposes. And there is a local shipbuilding industry increasing in importance, and able to supply immediately considerable reserves of skilled labour.

It must not be forgotten that one of the Navy's most important functions is to police the seas in peacetime. It is also necessary to show the flag at intervals in various parts of the world, and the latest and largest war vessels frequently undertake cruises for this purpose. Again, for political reasons we have had occasion in the past, and may have again, to send a large fleet for purely political purposes, or as a demonstration, without any intention of undertaking hostile action. If our largest battleships cannot be docked in great areas of the world's oceans, even for the purpose of cleaning their bottoms or undertaking small repairs, these great areas are virtually closed to our largest and most expensive vessels. Relative naval strength is still measured in battleships. These and the other post-Jutland ships can be docked nowhere east of Malta.

A British battleship could cruise all over the Pacific, Indian and Atlantic oceans, and would find no base capable of repairing her under-water hull until she returned to Plymouth westabout. Therefore, if we put our trust in battleships, we must construct bases for their service. It is on these grounds that the new naval base is being proceeded with at Singapore. Another great argument for Singapore is that it is required for the defence of Australia.

We spend £60,000,000 a year, and the United States of America nearly £70,000,000 a year, in maintaining a fleet, because of the possibility of war. And by the natural process we must envisage war against the next strongest naval Powers, even though these are such good friends and associates as America or Japan.

Singapore is one of the most important strategical points in the world, situated as it is at the point of intersection of a number of trade routes. It is the gateway to the Indian Ocean from the East, but not the only gateway from the East; and we are told that the principal reason for its construction is to meet a demand by the inhabitants of Australia and New Zealand. Some of our Australian fellow countrymen have been haunted by the nightmare of a Japanese invasion. It is said that Japan is overcrowded, and her population growing; that Australia is empty and there is a demand for territory in the north of Australia for the landless millions of Japan. As a matter of fact, no Japanese statesman or strategist in his senses dreams of attempting to conquer Australia by force of arms. Japan has a great field for colonization in Manchuria, and is taking advantage of it, however doubtful the means in international morality. But if the attempt were made on Australia, it could only be done by establishing a half-way house at the Marshall Islands.

The distance from Sydney to the Marshall Islands is 2,620 miles, and from Sydney to Yokohama 4,379 miles. A British squadron based on Singapore, and attempting to cut the Japanese lines of communication, would make for the Marshall Islands, or try a counter-attack on Yokohama. Now, the distance from Singapore to the Marshall Islands is no less than 4,004 miles, and from Singapore to Yokohama 2,888 miles. It is obvious that the distance is far too great for a fleet based on Singapore to interfere with any such expedition. As a matter of fact, the problem of the invasion of Australia by sea from Japan is insoluble. The invading army would have to be considerable, as the Australian forces are by no means negligible. It would be useless to land them in the northern territories, as these are not vital and contain few resources for an army. For decisive results it must attack the populous districts in the south and east of the island continent.

A modern army requires an enormous equipment in the shape of motor transport, artillery, aeroplanes, etc. And the amount of shipping tonnage required for an army big enough to make an impression on the Australian forces would be more than Japan could possibly find, even if she pressed every merchant vessel under the Japanese flag into service. It must be remembered, also, that she has to keep her commerce running and to import considerable quantities of foodstuffs, iron ore, and so on.

But it might be necessary to send a British Battle Fleet to the Pacific, even as a watching force, in case of an American or Japanese outbreak.

I suggest that it would be far better on every ground of economics, politics and naval strategy, to base a battle fleet on Australia itself. This fleet need not be so strong as the active Japanese Fleet. So long as it remained undefeated it would play the old role of a "fleet in being". In the late war our own Grand Fleet was much stronger than the German Fleet, but while the German Fleet, and especially the German torpedo craft, remained undestroyed, any invasion of the German coast by sea was considered too hazardous.

Such a base at Sydney would have the following advantages over Singapore :

(1) The climate is much better, Singapore not being healthy as a continued place of residence for white men, whereas Australia produces some of the physically finest men in the world.

(2) Sydney, as a naval base, would be automatically defended by the Australian Army. Singapore would require a large garrison, as it is vulnerable to attack by raiders landing secretly on the Malay Peninsula. In fact, many potential enemies could be settled there before war broke out, and it is a fact that many Japanese are already settled in the Malay Archipelago and Peninsula.

(3) Australia would be a good recruiting field for the Royal Navy. The inhabitants of Singapore are a mixture of Chinese, Malays, and other Asiatics, with a governing class of white merchants, professional men, administrators, etc.

(4) It would be economically more advantageous to establish

a great base at Sydney, as this would develop shipbuilding and engineering in Australia, and the Australians would be more willing to build up a larger share of the Royal Navy and maintain it than at present.

It may be said that it is necessary to bar the entrance to the Indian Ocean by a base at Singapore. There was a secondary dock capable of taking cruisers, and suitable for further development at no great expense, before the large floating dock was sent out. The Straits of Singapore are only twenty miles across at the widest. We could make them quite impassable by means of heavy guns, mines, submarines and aircraft. In the late war the northern part of the North Sea, two hundred miles across, was made nearly impassable in the last year, even to the German submarines, by the plentiful use of British and American mines. Similarly, it was not healthy for our large ships to approach within twenty miles of Heligoland. We could certainly make the passage of the Straits of Singapore extremely hazardous for the largest naval force available for raiding purposes into the Indian Ocean from the eastward.

The cost of Singapore is estimated at some £20,000,000 if the job is to be done thoroughly. Even the present reduced plans will cost a total of £10,000,000. But it was always intended to spend the larger sum eventually. It is not stated how much of this larger sum will be provided by the Australians, but we may feel sure that they would bear a much greater proportion of the cost of enlarging the present base at Sydney, for the money would be spent in their own country. The subsequent upkeep of Sydney would also be less, as local skilled labour would be available, whereas much of the skilled labour for Singapore would have to be transplanted, and houses, hospitals, churches, schools, recreation halls, etc., would have to be provided. These are already in existence at Sydney.

An advance base would be required in Northern Australia which would play the role of Scapa Flow in the late war to the Royal dockyards of Portsmouth and Plymouth. Singapore and Hong Kong already exist as suitable cruiser bases. A submarine and cruiser base would be required in British New Guinea, but as this would be a violation of the spirit of the Washington

Agreement, it would have to be improvised should war unfortunately break out.

In this connection it is interesting to notice how often improvised bases have been used for naval purposes in previous wars, since strategic conditions are never, in practice, what had been expected in theory. The most famous example is Scapa Flow in the Great War, the history of which as a great naval base "made out of nothing" except its natural advantages I have described elsewhere in this book.

The American naval staff pins its faith, to a great extent, to what is known as "the train"; that is, a flotilla of repair ships, supply ships, ammunition ships, floating workshops, oilers, etc., intended to accompany the Fleet and attend to its needs anywhere and everywhere. Such a train is expensive, but it increases mobility; for with it any sheltered bay can be utilized as an advance base; mines and nets, also carried in "the train", can provide a defence against submarines.

No doubt the American naval staff has been actuated in this policy by the relative scarcity of overseas possessions of the United States, and, therefore, of overseas bases for the American Fleet.

But there is much to be said on strategical grounds for this policy of floating repair ships for the British Empire as well. We have the beginning of such an equipment in the few existing repair ships already on the Navy List.

To continue this brief description of the existing naval bases, there are a series of coaling stations, now provided with oil storage, on both sides of Africa, including the Island of St. Helena on the west, the prison of Napoleon, Mauritius on the east, and Mombasa and Zanzibar on the east coast of Africa. These ports were of greater value before the opening of the Suez Canal, but they are retained for naval purposes, amongst other reasons, in case the Suez Canal was not available and the passage to India via the Cape of Good Hope came into use again.

Simons Town, in the south of Africa, is a cruiser base with a small dock capable of taking cruisers, and the headquarters of the African naval squadron. The Dominions of Australia and New Zealand maintain each their own naval forces and their own

dockyards and naval bases, the most important being Sydney, with docks at Garden Island and excellent engineering facilities.

Nearly in the middle of the South Atlantic is the solitary little island of Ascension. It was for many years utilized as a coaling-station, and could be so used again. With a total area of thirty-five square miles, it was run on man-of-war lines, with officers and crew borne on "ship's books". The principal product is turtles, and all ships calling there were under orders to carry a number of turtles home for the Lords of the Admiralty. Sometimes most of these died on the voyages. One turtle was the "perks" of the captain, and this turtle never died!

Turning to the New World, there are the Falkland Islands on the east coast of South America, now quite an old British possession, with a fine harbour and fuelling facilities, but no dock. Here it was that Admiral Sturdee's squadron of two battle-cruisers and some armoured and protected cruisers were lucky enough to surprise Admiral von Spee's squadron after the latter's destruction of the old ships under the command of Admiral Craddock on the other coast of South America. Sturdee's squadron was actually coaling when the German cruisers hove in sight, and were able to put to sea, bring the Germans to action, and destroy von Spee's command.

The German plan was to seize the Falklands and from there either raid commerce or make their way back to join the main German Fleet in European waters, or, most likely of all, make a demonstration off the west coast of South Africa, for the encouragement of disaffected elements in the Union.

On the whole of the west coast of the South and North American continents there is no British naval base or coaling-station except Esquimalt on the Island of Vancouver, a minor cruiser base, on the west coast of Canada. San Francisco and all California might have been ours a hundred and fifty years ago, but the Home Government was not far-sighted enough to annex it. The naval tradition is that the British Admiral, sent to survey this then desolate land, found the rivers full of salmon which would not take a fly or any other bait. A keen angler, he was so disgusted that he reported the territory useless! So the Pacific coast of the United States, the great territory west

of the Rocky Mountains, did not become part of the British Empire—and Hollywood is now on American territory.

On the east coast of the North American continent the only naval base is Halifax, Nova Scotia, on Canadian soil. It is a good naval harbour with a cruiser dock and repair facilities. The British islands of Bermuda in the Atlantic, 580 miles off New England, are an old naval station, and the excellent harbour contains a floating dock capable of dealing with large cruisers. Bermuda is often described as a menace to the United States by American super-patriots. Now that the principle of parity between the two navies has been agreed upon, and in the political state of the world, it would be a friendly gesture if the islands were demilitarized and the dockyard closed down. If we are not to fight the United States—and no one in his senses imagines for one moment that we are—the base at Bermuda loses its strategical importance. The writer urged this course on the British Cabinet during the 1930 Naval Conference. The results of that conference were meagre enough. They might have been more substantial if it had been conveyed to the American delegation that the closing down of the dockyard at Bermuda would follow general agreement. The few cruisers on the North American station could just as well dock at Plymouth, with more attraction for their crews, and the chance of their families in England seeing them once a year.

Kingston, Jamaica, in the West Indies, is a relic of our old campaigns against the French for the possession of the West Indian Archipelago. It is of increased strategical importance owing to the construction of the Panama Canal. But it is not maintained as a naval repair depot nowadays, is only lightly defended, and cannot be reckoned as more than a coaling-station and advanced cruiser base. Nevertheless, the "Big Navy" party in the United States has long used Kingston as a bogey also to frighten the American public with stories about its possible naval uses for threatening the Republic. This is one of the West Indian possessions which benevolent Senators have suggested should be made over to the United States as the price of cancellation of the War Debts.

It is perfectly true that the Royal Navy is well supplied with

overseas bases, but this is because of a far-sighted policy in the past, and also because of our vast colonial Empire. This Empire requires defence, and such defence is a prime responsibility of the Royal Navy. In carrying this responsibility the Fleet must have overseas bases and fuelling-stations. It is also true that the possession of these outlying naval harbours makes the defence of trade easier and also facilitates the use of cruisers for waging a war on commerce in the event of the peace being broken. But it is hardly a fair argument to base a demand for extra cruiser strength for the United States Navy, under the plea of seeking parity, on the existence of these bases. We might argue in our turn that the Panama Canal has doubled the effective strength of the United States Fleet by enabling it to be concentrated in the Atlantic or Pacific as required.

These arguments are, however, theoretical; for unless the populations of the United States and of Great Britain both go stark staring mad, any war between the two great English-speaking peoples is impossible, while if some other powerful nation goes mad and breaks the peace, it is to be hoped the two English-speaking peoples will act together for the restoration of peace, as, with better leadership, they would, and should, have done at the beginning of the Asiatic trouble in the autumn of 1931.

CHAPTER X

SOME NAVAL REMINISCENCES

The Golden Age—How wireless restricts liberty—An unrecorded hero of the Boxer rising—Trawlers—Contempt for mines—Spit and polish—Some nautical expressions—Pirates of to-day—Salutes and ceremonial—Rude welcome for a Chilean—Cold feet on the Yangtse-Kiang—Funnels and national prestige—Tricks and practical jokes—Slavers in the Red Sea—Turkish hospitality—Sport in Albania—*Hymns Ancient and Modern* and the Signalling Code—Football on the equator—"Crossing the line"—Boat racing—Game shooting in the Far East.

THE golden years of the Navy were before the invention of wireless, and when, owing to the state of the world and the absence of any great naval fleet in home waters, the flag was widely shown on distant stations by cruisers, sloops and gunboats. Once the captain of a ship got away "on his own", not only was there no wireless to keep him in check and guide his hand, but in most parts of the world there were not even cables. This gave great scope for individual initiative, and many a young naval officer earned distinction by prompt action in putting down disturbances and even by annexing disputed or hitherto unclaimed territory.

Others used their liberty in a more free-and-easy manner. I knew one captain of a sloop on the China station thirty years ago who was a great sportsman. He was an Irishman, and his passion was snipe shooting. The snipe used to migrate down the coast in great numbers, but would-be gunners had to be on the spot when they arrived and before they left. This officer used to find urgent reasons for always being on that part of the coast where the snipe were.

To-day all this has changed. Every ship is fitted with wireless, and must keep in touch not only with the commander-in-chief of the station, but, in most cases, with the Admiralty

at Whitehall. With the destruction of the Russian Fleet during the Russo-Japanese war in China and the coming of the threat of the German High Sea Fleet at home, most of the fighting ships were concentrated in home waters and many of the older gunboats and sloops, which were good enough for peace service on foreign stations, were found unsuitable for use at home and ruthlessly scrapped by the late Lord Fisher. These measures, while they increased fighting efficiency, ended the halcyon times I have described.

During the Boxer Rebellion in China a remarkable incident occurred. When the rebellion was being suppressed by a large international force which had been sent to China, it was decided to capture the important strategical post of Shanhai-Kwan, where the railway line runs down the coast, and where also is the seaward end of the Great Wall of China. This place figures prominently in the news of the disturbances to-day in China, and it was then defended by a ring of modern forts erected by German engineers and armed with Krupp guns. The operation was looked upon as serious, as a large Chinese army had been concentrated at Shanhai-Kwan. It was decided to take no risks.

The combined army of all the European Powers, America, and Japan, under the command of the famous Marshal von Falkenhayn, was to be landed some distance away, to march inland and take the forts in rear. The combined Allied Fleet under the British Admiral, Harris, was to appear simultaneously to seaward of the forts and bombard them. All available vessels were ordered to concentrate at dawn on the day fixed from all parts of the station. Among the ships to receive these orders was a small British sloop lying in a Korean port. In order to make certain of arriving in time, especially as he might meet a typhoon and be delayed, the captain started twenty-four hours early. But, as the weather kept fine, he arrived at dawn on the day before that fixed for the operation.

Having sighted land, he thought he might steam fairly close in to reconnoitre. To his surprise, the signalmen reported that through their telescopes they could see the Chinese Army in full retreat and the garrisons of the forts running out of them

like ants disturbed in their nest. On "standing in" he found the whole countryside desolate and the forts empty. An officer was sent, with an armed boat's crew and a small landing party, to investigate further. This officer was able to take possession of all the twelve forts without firing a shot. He put two blue-jackets in each, and hoisted the British flag over every one of the forts.

The fact was that the Chinese rebels had been warned of this great expedition and, thinking our small sloop was the advance guard, fell into a panic and made a strategical ~~retreat~~ "according to plan".

The next morning, also according to plan, the great army of Marshal von Falkenhayn, having marched all night, appeared; to find every fort in the possession of two British bluejackets flying the British flag, who refused entrance to everybody, and declined to give up their captures. A great powwow followed, and finally the British had to surrender all but two of the forts to the Allies. The captain of the gunboat got his promotion.

During the Great War we felt the loss of many of these small ships, and utilized armed fishing trawlers to take their place. These trawlers were commanded by hardy fishermen, whose knowledge of the sea was greater than their knowledge of naval warfare. But they did sterling service in fighting submarines, sweeping for mines and convoying merchant ships. The German mines were not only moored, but in some cases were left drifting about in the tide. They were of the famous spiked variety, which were so constructed that when one of the spikes was struck a glass tube was broken and the acid it contained ran down a pipe, galvanized the battery in the mine, and an explosion followed. Careful instructions were issued that on no account must one of these spikes be broken if a mine was washed up ashore or recovered from the sea.

I remember one of our trawlers coming into Scapa Flow and reporting that he had a German mine on board, which had been picked up floating about at sea. The skipper was told on no account to break one of the spikes. "That's all right," he replied; "I read the instructions, and before hoisting it on board I knocked the spikes off myself with a boathook." That

particular mine was, of course, a "dud", or there would have been no story to tell.

Another of our trawler skippers on patrol was caught in a thick fog, lost his bearings and made fast in the darkness to what he thought was a buoy. When daylight came and the fog lifted, he found he had secured his cable to a moored German mine. Fortunately this also was a "dud".

One of the most remarkable changes in the Navy in the years before the Great War was the gunnery renaissance. At the beginning of the century, after a very long period of peace, and with no real threat at sea, a tremendous amount of time was spent solely in making the men-of-war look pretty. Until the great increase of the power of the artillery made it necessary to spend more time in gunnery practice, one of the surest ways for an officer to gain promotion was to have the vessel under his command cleaner and daintier in appearance than any steam-yacht. Beautiful enamel, brass shining like gold, decks as white as snow and steelwork like polished silver represented good organization and willing work, and was looked upon as a mark of smartness and efficiency in a ship-of-war. One of the cruisers on the Mediterranean station, where the weather is usually good, burnished a steel torpedo-boom on either side of her hull. It was oiled and covered with canvas when the ship went to sea. Another vessel, not to be outdone, burnished one of the spare anchors until you could see your face in it, and the fore-castle men who lived near the anchors used it as a shaving mirror.

Yet during this craze for "spit and polish", as we used to call it, the Admiralty, in the interests of economy, was very stingy in the allowance of paint and cleaning materials, and officers had to dip their hands deeply in their pockets to buy extra paint. This state of affairs became a scandal, but was at last brought to a head by a very independent officer who refused to spend a penny on extra paint and pretty-pretties and cruised about with only one side of his ship painted, declaring that this was all the paint allowance would cover. A vigorous correspondence followed with My Lords of the Admiralty, but the defier of tradition stood fast, and in due time the authorities increased the

allowance of paint and other necessities to him and to all other ships.

I had one piece of luck when I discovered in our home dockyard a storekeeper in charge of the paint stores who came from the same part of Yorkshire as myself. After exchanging local news, he asked me, as a special favour, to send a small rowing boat that night to a quiet flight of steps leading down from the dockyard wall. I could only guess the purpose of this, but arranged for the boat to be sent, and she returned filled with drums of enamel and paint—enough to last us for the rest of the year. It would have been no use sending it back, as no one could have been found to claim it, and we were glad enough to make good use of this manna from heaven, or, rather, from the Yorkshire moors.

Some nautical expressions and figures of speech are of great antiquity and come down to us from the sailing ship days. For example, when a sailor is going on leave he counts up his money and decides he has got so much to “veer and haul on”. The origin of this expression is that when the anchor is down there must be enough cable remaining in the locker to let out a little more or to shorten up the moorings as required, according to the weather.

A man who hesitates and is always changing his mind is spoken of as “backing and filling”. The origin of this expression is the practice of a sailing ship in a narrow passage with a contrary wind alternately filling her sails, proceeding a short distance and then backing her sails by turning so that the wind blows them against the mast and forces her back again, gradually moving forward in this way. A seaman lying down for a short nap talks of “taking a stretch off the land”. This originated in a ship tacking against the wind, near the shore, when greater caution has to be exercised in approaching the land than when sailing away from it.

A very argumentative man in a ship is known as a “sea lawyer”; and one who talks too much is said to have his “tongue on gimbals”. The gimbals are the double swivels on which the compass is mounted so that it can turn all ways and remain level however the ship moves.

A man going about with a very doleful expression is said to have a "sea-boot face", the idea being that his face is as long as his high sea-boots.

A man with too much drink aboard is said to be "three sheets in the wind". This expression, now well known on shore, suggests a vessel badly manœuvred and with two or three of her sails flapping or forced against the mast through being too close to the wind. In the same way a man who takes undue risks is spoken as of "sailing too close to the wind", which means trying to steer a course more to windward than the ship's sailing capacity warrants.

A very tall story is sometimes referred to as being "all my eye and Betty Martin". The origin of this is an old fable in the Navy of a cooper in the victualling yard by the name of Martin, who led an unhappy married life. Driven to desperation, he killed his wife and headed up her body in a salt-pork cask, one of a consignment waiting to go on board an outgoing vessel. The young men going to sea were told this story so that they wouldn't eat their salt pork but would leave all the more for the older hands—it never having been discovered, according to the story, exactly *which* cask of alleged salt pork contained the remains of the unfortunate Betty Martin, such being the lady's name.

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We had a lot of trouble with Chinese pirates, especially in South China. They still give trouble. Nowadays the pirates come aboard coasting steamers disguised as passengers, and try to overpower the crew when out at sea. The old method was to attack the sailing junks, which carry most of the coasting trade in China, in their own armed boats. If a man-of-war was about, the pirates reverted to their normal occupation of farming and fishing.

Sailors are very good at dressing up and acting parts. A successful ruse carried out, not so many years ago, was to man a genuine sailing junk with bluejackets disguised as Chinese sailors. When the Chinese pirates came to attack her, her masked guns were exposed and the villains found that, instead of capturing a peaceable trading junk, they had caught a regular Tartar.

The same trick was successfully used during the war against

enemy submarines. Innocent-looking merchant ships were sent to steam along the regular trade routes; but they were like the wooden horse that was taken into Troy filled with armed men. They, too, had hidden guns carefully masked, but the submarine captains were a little more wily than the Chinese pirates. It was sometimes necessary for the "Q" ships, as these disguised merchantmen were called, to allow themselves to be torpedoed and for the crew apparently to abandon their ship and take to the boats. Just before the vessel finally sank, the submarine came to the surface the better to see her enemy. Then down would come the hidden portholes and the guns would open fire, enough men being left on board the sinking ship to handle them. The "Q" ships, as a rule, did not actually sink, as they were filled with empty casks and would only go down a certain distance. There is nothing new under the sun, and in the Napoleonic Wars with France we caught some of the French privateers in much the same manner.

I have already referred to other ways of destroying submarines, which include ramming, laying special minefields for them to run into, dropping bombs on them from aeroplanes and "depth-charging" them. Depth charges consist of steel drums filled with explosives, with a firing apparatus which functions by the pressure of the water when the charge has descended to a certain depth. This firing-depth could be adjusted.

On the periscope of a submarine being sighted, the depth charges would be dropped all round the area; or if the track of a torpedo was seen it would be followed along by fast destroyers and the depth charges released as near as possible to where the submarine should be. Even if they did not damage her, they gave the submarine and her crew a tremendous shaking-up and taught them to be more careful in future. Towards the end of the war we perfected listening apparatus by which the sound of a submarine's engines could be distinguished and her direction and position discovered without seeing her at all.

There was great competition in pre-war days in performing

some of the naval drills, one of which was to lay out a ship's heaviest anchor by slinging it underneath an open boat, sometimes useful for hauling a stranded vessel off a sandbank. One officer whom I knew had a wooden anchor made, which was, of course, lighter and more quickly handled than the steel anchor. He had great success with his anchor drills, until the admiral in charge of the squadron became suspicious and gave an order for all the anchors to be let go, that is, to be dropped to the seabottom. My friend's anchor promptly floated to the surface, and he was told by signal to have it broken up for firewood, as apparently a mistake had been made by the dockyard in providing him with a wooden anchor instead of a steel one!

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The Royal Navy used to live in terror of journalists, especially when there was a war on. During the Russo-Japanese War, while the Japanese were laying siege to Port Arthur, we had a squadron lying at Wei-hai-wei, not far away, to safeguard British interests. A certain enterprising war correspondent hired a small steam tug and proceeded to poke about off Port Arthur looking for news. The Russian general in command of Port Arthur caught him at it, and said if he appeared again he would hang him. He stayed then further out at sea until discovered by the Japanese. Admiral Togo, commanding the Japanese Fleet, said, if he found him again, *he* would hang him. Very indignant, this newspaper man came over to Wei-hai-wei and laid a complaint before our admiral, the famous Sir Gerald Noel. "Well," said Sir Gerald, "if I catch you about here again I won't hang you; but I will put you under arrest and you will sleep in a hammock under the forecastle until the whole war is over." Finding himself so unpopular at sea, our war correspondent obtained a permit to join one of the armies in the field, and we saw no more of him.

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In the Royal Navy service ceremonial counts for a great deal. Salutes at sea have always had an importance. In the old sailing-ship days a man-of-war passing an admiral's flagship would

lower her topgallant sails, or the upper square-sails, on her masts, the idea being that she should slacken speed to allow the senior vessel to pass. Merchant vessels were supposed to do the same thing when passing one of the King's ships. We once fought a war with the Dutch to force them to salute all our men-of-war at sea. King Philip II of Spain, coming with a gallant fleet and all the pomp and circumstance of his Imperial state to claim Queen Mary of England as his bride, failed to dip his colours and lower his upper yards on sighting the English Fleet. The English admiral fired a broadside of shotted guns at the Spanish monarch to remind him of his duty.

In these days of steamships merchant vessels are supposed to dip their colours, in other words lower the ensign half-way down the mast or flagstaff, and rehoist it, the man-of-war responding in the same way. A man-of-war approaching a foreign port, or meeting the admiral of a foreign power at sea, hoists the colours of the country she intends to compliment and fires a series of blank charges from her light guns. On the occasion of entering a foreign port twenty-one guns are fired, while an admiral receives seventeen. The origin of this was in the old days of muzzle-loading guns, when a warship entering a foreign harbour was supposed to discharge all her guns, which were kept loaded at sea, before entering port. The interval between the guns used to be ten seconds, but now it is five seconds, the time being taken with a stopwatch. The old-fashioned gunner warrant officers would never use stopwatches, but had, instead, a little doggerel which they recited between each gun discharge. Thus the old gunner, in charge of the saluting battery, would say: "Number One—FIRE," and as soon as the gun had fired he would begin his little rhyme as follows:

Twenty years a gunner,
And then to be called the son of a gun
Number Two—FIRE!

Twenty years a gunner,
And then to be called the son of a gun
Number Three—FIRE!

Now that the interval has been reduced to five seconds, the formula is as follows :

If I wasn't a gunner I wouldn't be here
Number Two—FIRE !

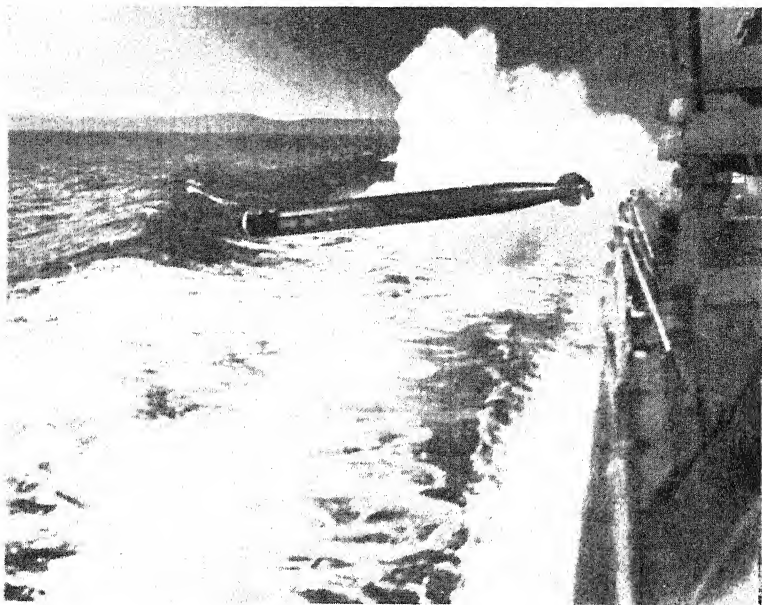
If I wasn't a gunner I wouldn't be here
Number Three—FIRE !

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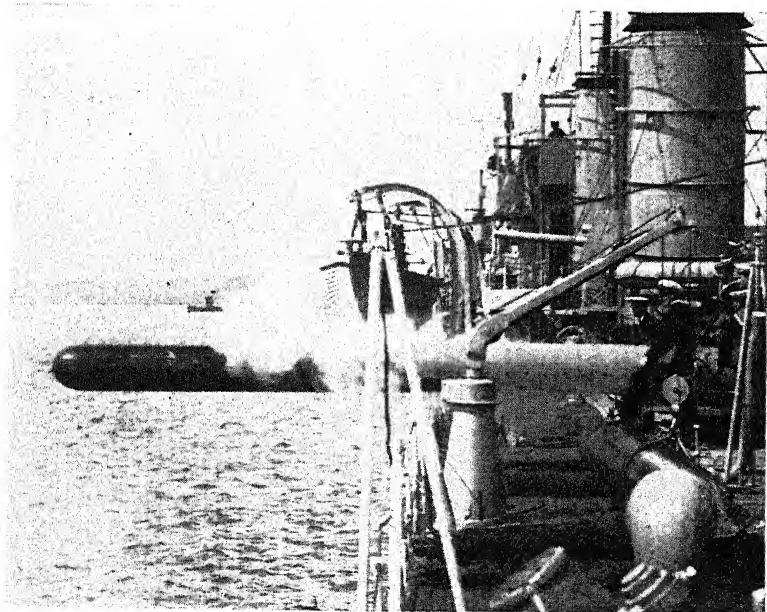
When I was on the China station, over twenty years ago, we received an unexpected visit from a Chilean warship to Hong Kong, and the first we knew of her arrival was hearing her fire the customary salute with the Union Jack hoisted at her masthead. It was a Sunday afternoon, and the gunner had gone ashore for a walk. One of the sub-lieutenants was told off to get the saluting guns ready and return the Chilean warship's salute. Naval guns carry a long wooden rod with a leather plug at one end which fits into the muzzle to keep the damp out at sea. It is called a *tompion*. Our young friend forgot to have these removed from his guns, and when the time came to return the salute the Chilean warship was nearly abreast of our man-of-war. On the first gun being fired, with a blank cartridge in the breach, the *tompion* was shot out like a great arrow and went through the funnel of the Chilean man-of-war, to the great surprise of everyone concerned. Our captain was furious, and ordered the officer to put on his frockcoat, sword and cocked hat and go on board to apologize, where he found that, luckily, no one had been hurt.

Another funny incident that happened in connection with saluting was during the Boxer Rebellion. The great Yangtse-Kiang, running through the centre of China, is an artery of commerce and has many foreign settlements on its banks. High up the river is the wealthy city and treaty port of Hankow, with an important foreign colony. The Boxer Rebellion did not actually spread to the Yangtse valley, but at one time it looked as if it would, and our consul at Hankow sent an urgent S.O.S. for a gunboat to be sent up to protect the foreign community.

All our ships, under Admiral Seymour, were engaged in



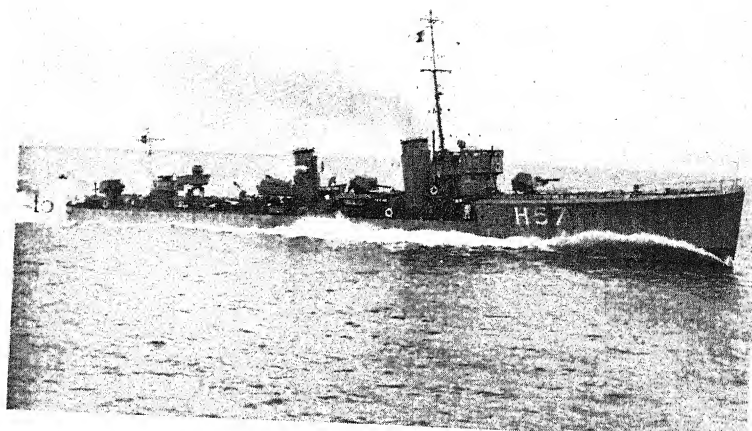
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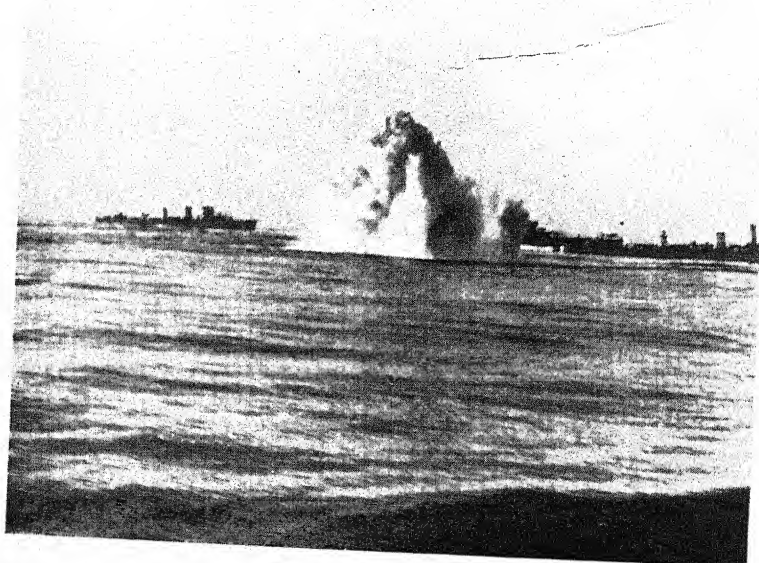
Above : DESTROYER FIRING TORPEDO

Below : TORPEDO LEAVING TUBE ON BOARD DESTROYER



DESTROYER "SPINDRIFT" AT FULL SPEED

[Abrahams, Devonport



DESTROYER FLOTILLA CARRYING OUT DEPTH CHARGE ATTACK

[Abrahams, Devonport

relieving Peking, then besieged by the Boxers, and the only British man-of-war available was a small sloop lying farther down the river. She was ordered to proceed with all speed to Hankow, and to get there whatever happened. Now below Hankow the great river Yangtse narrows, and the banks form cliffs on either side at a place called Chin-Kiang, where, some years before, the Chinese had erected modern forts built under the direction of German officers and armed with the latest Krupp guns.

Just above Chin-Kiang was a formidable Chinese Fleet, including several hefty ironclads, each one of which would have been more than a match for our small sloop. The attitude of the gunners in the forts and the Chinese sailors in the Fleet was doubtful, to say the least of it, and news reached the officer in command of the sloop that the Chinese admiral had sworn that on no account would he allow any Allied warship to pass. Still, there was nothing else for it, so before reaching Chin-Kiang the sloop cleared for action and everyone went to his battle station with a distinctly sinking feeling at the base of his stomach. The dressing-station for the wounded was in the officers' mess or wardroom, and here was stationed the Irish doctor and the paymaster, whose duty it was to assist the doctor in action. Down below they were unable to see what was going on, and felt extremely uncomfortable. Suddenly there was a crash and a gun fired on deck. "Begorra," said the doctor, "the fight's started and we're all dead men." A few seconds later another gun went. The two poor fellows were convinced their hour had come, so they drank the last two bottles of champagne on board as rapidly as possible, so as to make sure of them. All that had happened, however, was that our sloop had hoisted the Chinese colours and fired a salute of blank cartridges out of compliment to the Chinese officer in command of the fleet, who returned the salute, also with blank cartridges, and nothing further happened.

Having safely navigated the narrows and passed by the Chinese forts and the Chinese Fleet without any untoward incident, the crew were piped to dinner and the captain and officers went down to the wardroom for something to restore their shattered nerves. There they found the doctor and the paymaster shaken

but brave, and the champagne bottles empty on the table. "Holy St. Patrick," said the doctor, "is it all over? Have we won the battle?" "Yes," said the captain, "we've won the battle, but what's happened to our last bottles of champagne?" "Oh, well," said the doctor, "we thought you wouldn't be needing them, and so we made sure they wouldn't fall into the enemy's hands."

After the rebellion was over and peace restored, our admiral took a complete fleet of battleships up the Yangtse right into the interior of China, to the astonishment of the natives, who had never seen such immense warships. We had to steam at full speed, as the current is very swift in the river, and our wash poured over the low banks and swept quite a number of the amazed inhabitants into the river, so much so that we had to detail a torpedo-boat destroyer to bring up the rear of the squadron and have her boats ready for lowering to pick up the natives struggling in the water.

There was rivalry in those days between the English and Russians in the Persian Gulf, both Powers intriguing for political dominance, and it happened that the less sophisticated inhabitants of Asia were accustomed to reckon the worth of a warship by the number of her funnels. The Russians had a cruiser, the *Askold*, with five slender funnels, which our sailors always called the "Packet of Woodbines". She made a special cruise up the Persian Gulf and much impressed the local chiefs by her display of funnels. We ourselves had no five-funnel ships, but we had a four-funnel cruiser called the *Amphitrite*. She was ordered to make a cruise up the Persian Gulf, also to impress the natives. At the first port she reached, Bushire, our consul and the leading British merchants explained that no impression at all would be made by anything with only four funnels, the *Askold* having been there some weeks before sporting five. But the captain of the *Amphitrite* was a man of resource. He went to sea out of sight of land, and when he appeared at the next port of call his ship had six funnels, two dummy ones having been rigged up of wood and canvas, and plenty of smoke

streaming from them through special pipes led from the other funnels. With her six funnels she made a tremendous impression wherever she went, and quite outshone any prestige already acquired by the *Askold*.

Torpedo-boat-destroyers are long, narrow craft of small size, almost entirely filled with engines and boilers, as their chief quality is high speed. As the deck is only about five feet above the sea, in rough weather the ship is as much under the water as above it. The hatches, giving egress from below, are simply round holes in the deck with special watertight covers, just large enough for a man to pass through. To show how small they were, I remember some ladies coming on board to tea at Malta, at a time when fashion decreed that large picture hats should be worn. The chaperon's hat was so large that it wouldn't go down the hatch, and she had to leave it on deck in charge of the petty officer of the watch.

A rather stout officer in one of our destroyers had the misfortune to fall down in rough weather and break his leg. He was taken down below and spent six weeks in his bunk, with his leg in plaster of Paris, until the bone had mended. When he was ready to go on shore, he found he had grown so fat that he couldn't get through the hatch and had to have the deck cut away!

When a great many young men are cooped up on board ship they have to find an outlet for their energies, and this sometimes takes the form of practical joking. The junior officers, the petty officers and seamen all sleep in canvas hammocks slung up to the beams overhead. Before supper the hammocks are slung ready for the night, and during supper a very old joke was to choose the hammock of some unfortunate youth, unsling it and hang it up again with what is known as a "slippery hitch". The hammock looks safe enough, but when any weight comes on it the end draws and deposits the would-be sleeper on deck. A much more cruel joke, strictly forbidden, was cutting the hammock

down so that it fell with a bump, sometimes with disagreeable results to its occupant.

A trick played on young officers when they first go to sea is to suggest that they insert a tin funnel, used for filling bottles or casks, through the lower part of their waistcoats, balance a coin on the forehead, and attempt to drop the coin into the funnel. While the unsuspecting youngster is balancing the coin a messmate pours the contents of a glass of water down the funnel. The first the victim knows is that he has got a thorough wetting, and his only compensation is to wait for somebody else to come along who doesn't know the trick.

In recent years there has been a revival of the slave traffic across the Red Sea and the Persian Gulf. The British Navy has during the last half-century been attempting to stop this traffic, and frequently with success. The slaves, captured by raiders from Abyssinia on expeditions into the Sudan, are smuggled down to the coast and taken across to Arabia in dhows, or Arab sailing ships. We found that as soon as a British gunboat or cruiser appeared the slave trade ceased until she had sailed away again. And as there weren't enough gunboats to watch the whole coast, we used to arm the ship's sailing lifeboats, chiefly pinnaces and cutters, and send them away cruising, for weeks at a time, under a midshipman. Twelve to eighteen sailors would form the crew, and a light gun or machine-gun would be carried in the bows. In very bad weather these open boats would seek shelter in the mouths of creeks, or wadis, as they are called in Arabic. All dhows sighted were overhauled and examined. As these Arab dhows are fast sailers, they can usually only be cornered by the boats working in combination, and very good teamwork is required. Great care was necessary in boarding the dhows, as they are up to all sorts of tricks. One of these tricks was to drop a large rock over the side, which would go through the bottom of the wooden Navy boat and sink her. And no quarter was shown if the slavers got the upper hand.

It was necessary, also, to haul alongside on the windward side, as another trick was to let fall the great sail on top of the

open boat, to be followed by the dhow's crew, armed with knives, who would stab our men through the canvas before they had time to extricate themselves. The wretched slaves were manacled together between decks in terrible conditions, and it was a work of humanity to free them and take them to Aden, Zanzibar or other British territory. We sometimes had as many as twenty ships' boats strung out along the Red Sea coast, and once a week a cruiser, known as the parent ship, would run down the line, perhaps a hundred miles long, and serve out mails, fresh provisions, and take on board any sick men; though, as a matter of fact, in spite of the intensely hot weather, the general health of men on these expeditions was remarkably good.

This is just one example of the kind of work the Navy does in peacetime, of which the general public hears very little.

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My first job in the Navy as a commissioned officer was when, as a sub-lieutenant, I was appointed second-in-command of a gunboat in the Mediterranean that was used as the special yacht of the commander-in-chief. In her we visited Constantinople twenty years ago, in the heyday of the great Sultan Abdul Hamid. Having safely passed up the Dardanelles and anchored in the Bosphorus, the admiral and the captain of our gunboat went ashore to pay their respects to the authorities, leaving me in charge. The signalman presently came down to report a Turkish steamboat approaching the ship, filled with high officials. Hastily girding on my sword, I went on deck to receive four magnificent Pashas. One was an admiral, one a general, and the other two were high Court officials representing the Sultan. After the usual exchange of courtesies, they asked me how many men there were in the ship. I rather hesitated to give them the information, as I thought it might be confidential, but finally told them that we had a hundred men, though, as a matter of fact, our crew was only eighty. After more courtesies and the dispensation of some hospitality by myself, they left their cards and took their departure.

Later in the day, a launch came alongside laden with fresh meat, bread, liquid butter and, most wonderful of all, beer.

This, it appeared, was a present from the Sultan to the ship's company; and the reason they wished to know the number of the crew was to know how much to send. I was glad I had exaggerated the number of men on board! This was repeated every day of our week's stay, together with presents of "Turkish delight", cigarettes and sweet wine, none of which was wasted. Our whole reception was most hospitable, and some very gorgeous ceremonies were arranged. Our visit wound up with a magnificent banquet at the Sultan's palace, to which we all went in full dress with our cocked hats, swords, etc. After dinner we retired to an anteroom, where a large tray was brought, escorted by a gorgeous official, on which were displayed medals and decorations for every officer in the ship, my own being a gold medal of one of the Turkish Orders of Chivalry.

Later in the year we went to Albania, then under Turkish rule, and visited the magnificent Bay of Avlona, partly because we made a point of showing the flag in this country every few years, partly because of the wonderful woodcock shooting in a great thicket of thorns, several miles long, known throughout the Navy as the Horseshoe Covert. This huge thicket of thorns was always full of woodcock at a certain season of the year, which season we were careful to choose for our visit. But they took a good deal of beating out, and our trouble was to get beaters, as no Albanian freeman would think of working for anyone, least of all for a stranger. Finally, however, we engaged some serfs, one of whom had lived in New York for some years and spoke fairly good American. Unfortunately, we trusted him on this account, and gave him our lunch to carry. After the end of a beat he didn't reappear, and was not to be found anywhere. He had disappeared with our lunch, including the captain's silver flask and bag of cartridges.

We spoke to one or two Albanian freemen, who are the most honest people in the world. They expressed their indignation, and put it down to his foreign training. So the next day I took our little steamboat and went up to the small town at the head of the Gulf to see the Turkish Governor. My marine servant jokingly suggested I should put on the medal given me by the Sultan of Turkey, but although I did not do this I took it with

me. The Governor had apparently got out of bed the wrong side, for he was in a very bad temper, and as good as told me that it was our own fault for trusting one of the natives, who, he declared, were all thieves and cut-throats, and we were lucky not to have been murdered. He evidently wasn't going to help us at all, so as a last resort I took out the Sultan's medal and told him I had just had it given to me in Constantinople. The change was miraculous. If I had been the Sultan himself I couldn't have been treated with greater deference. The Governor sent for all his staff, gave twenty people different orders in as many seconds, and presently had the whole countryside looking for the thief, who was finally captured and all our property returned, except for one tin of *pâté de foie gras* which had been consumed. We begged that he should not be punished, and this was agreed to.

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During the Great War both the Germans and ourselves became very smart at decoding each other's wireless signals. The Harwich Force, under Commodore Tyrwhitt, was undertaking an operation in the North Sea on one occasion in misty weather, and got news that enemy Zeppelins were about. His ships were all scattered, and it was necessary to send a wireless signal to warn them. He therefore signalled to all ships to read the last verse of Hymn 224. Efficient as was the German General Staff, they had neglected to provide themselves with a copy of *Hymns Ancient and Modern*, but all ships in the British Navy carry hymn-books. On looking up the verse, the captains read the following :

O happy band of pilgrims,
Look upward to the skies,
Where such a light affliction
Shall win so great a prize.

This was all that was required, and, sure enough, one of our destroyers presently brought down a Zeppelin with her anti-aircraft gun.

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All sailors love games, and never lose an opportunity of taking part in whatever is doing. I remember during a long stay at Singapore, in the East Indies, we played Rugby football on Christmas Day against a local team of planters and other sporting Britons in the colony, in a temperature of about 100 degrees Fahrenheit! And in the afternoon, when it was even hotter, two of our ships sent their best racing crews to engage in a three-miles very keenly contested boat-race in heavy ships' boats, one against the other. They were much thinner when they had finished.

Naturally, most of the opportunities for sport occur when the ships are in harbour, and all ships have their own football and cricket elevens. The favourite football game is Association, though the so-called West Country ships, which is, as previously mentioned, the name given to those manned from Plymouth and containing a large proportion of men from Devonshire, Cornwall, and Ireland, have Rugby fifteens playing under the English Rugby rules as well.

When we are at sea in the larger ships we can play hockey on deck if the weather is not too bad; and one of the most popular pastimes is boxing, which has always been held in great favour in the Navy and encouraged in every way. In fact, the modern boxing-glove was first invented by some of Admiral Nelson's officers who wanted to find a way of keeping the men amused and happy during the long naval campaigns of those days.

The old ceremony of crossing the line always leads to a good deal of horseplay and skylarking. Crossing the line means crossing the equator, and all those on board who have not already passed south of the equator, or, when going north, have not crossed it from the south, are supposed to be initiated by King Neptune. The ship is stopped, the look-out man reports that Neptune wishes to come aboard, and in he comes over the bows of the ship with a queen and a Court all fully decorated and equipped, including mermaids, the Court barber, etc. A big canvas bath is rigged up amidships, and each novice is freely lathered with a bounteous mixture of soap and water, shaved with a wooden razor, admonished by King Neptune as to his duties as a seaman or traveller, and then flung into the bath,

where he is given a good ducking by Neptune's courtiers standing in the water for that purpose. I have seen an unpopular officer or man given quite a rough time by the young spirits who form the Court. These ceremonies sometimes used to go on all day, the fun being fast and furious. The ceremony is sacred to sailors, and the navigating officer is quite capable of altering the reckoning of the ship, for public purposes, so as to cross the line at a convenient hour of the morning when otherwise the equator would be reached at night.

A very cruel joke sometimes played on board sailing ships is to make fast the end of a halliard or sail rope which the men would have to haul on during a manœuvre with the sails, or in altering the course of a ship, to the handle of some unfortunate fellow's sea-chest. All unsuspecting, the watch would man this particular rope and run away with it, and the unhappy victim would see his chest with all his treasures and belongings, possibly bursting open, hoisted up to the masthead.

A custom of great antiquity is the toasting of sweethearts and wives on Saturday nights at sea by the youngest member present, who must make a speech standing on the table. Sometimes, should the juniors appear to be getting slack, they are made to perform a kind of obstacle race under the table, known as "groping". As in our rather congested condition on board ship the underneath of the table is occupied by tin cases, trunks, and sometimes beer barrels, this is more difficult than it sounds, and is certainly a very well-known cure for seasickness in the case of the young men who are a little unsteady on their legs during the first few days at sea.

Boat-racing sometimes involves a good deal of fun. It has always been a very popular sport in the Navy. A well-known practical joke was to secure a torpedo underneath the keel of a racing boat, the starting lever being operated by means of a cord worked by the coxswain. On the torpedo being started, the boat above it would be impelled through the water at a tremendous speed, the crew doing their best to simulate hard rowing, and usually causing a great deal of excitement among the inexperienced. Again, I have known a skilful swimmer swim under the water, close along the side of a ship,

while the men were at tea, to a racing boat waiting to take part in a race, dive under the keel and secure a canvas bucket by a short length of rope to a hole in the keel used for lashing down the tarpaulin covers for the boats when not in use and lying on the upper deck. The effect of this would be to act as a very effective drag; the unsuspecting crew would pull away at the oars and not understand why they made so little progress.

Another trick sometimes played when a boat-race had been arranged was to remove the plug secretly from the bottom of the rival boat and replace it by an artificial plug carefully made to look exactly like the other, but of a special nature. This plug was soluble, though with a thin wooden cap that made it look to all intents and purposes just like the regular wooden fixture. After being a few minutes in the water, the soluble gum of which the temporary plug was constructed would dissolve, and water begin to trickle into the boat, very often not to be discovered for some time, when a considerable amount of water would be found lapping about in the well or bottom of the boat. In any case there would be a delay to repair damage, and this trick, if it came off, would usually have the desired effect, though it was naturally looked upon as most unsportsmanlike and reprehensible.

I served my first commission abroad as a midshipman in a battleship on the China station, and we used to get a good deal of sport there. There were no game laws in China, and the Chinese farmers were very good in allowing Englishmen to shoot and hunt all over their land. The only trouble was the dogs in the villages, which were very fierce and had a habit of attacking strangers. I knew a case of an officer out shooting who thought he was being seriously attacked by the dogs and peppered one of them with small shot. Thereupon the whole of the men of the village turned out with rifles and he just escaped with his life. On the other hand, if a dog actually tried to savage you, the Chinaman wouldn't mind if you kept him off with a knife. I persuaded the ship's armourer to fit a bayonet to my sporting gun, and this so effectively kept the dogs at a distance that I never actually had to hurt one.

The great water-buffaloes, nominally tame and in charge of

a small child whom they obey implicitly, were sometimes very fierce and would also attack strangers, but if the small child were about, and friendly, one was quite safe.

In the crowded fields you had to be very careful in shooting not to put a few pellets into a human being, though it was counted much less serious to do this than to pepper a dog. An officer from one of our ships was unfortunate enough to put some small pellets into a Chinese farmer, through a pure accident, but though he gave the man ten dollars compensation, we were never able to shoot in that part of the world again, for the news of our munificence spread like wildfire and the natives used to lie in the long grass all round us and jump up in the hope of being hit with small shot every time we fired!

Life at sea is very hard, and sailors always grumble, which is their hereditary privilege. But they are always ready to make a joke of anything under the sun, and always welcome any diversion that will raise a laugh.

CHAPTER XI

SOME LESSONS OF THE GREAT WAR

Modern war the unknown factor in 1914—Dependence of Britain on sea-borne supplies—Command of the seas—Disappearance of the German Mercantile Marine—Methods of blockade—Early plans for close blockade—Distant blockade—White lists, black lists and rationing—Cruisers on the trade routes—Losses from submarines—How submarines were destroyed—The convoy system—Lord Fisher's war plans—Dardanelles—Lack of a naval staff—Defensive strategy—Formation of Plans Division—Some German blunders—Cruelties of the submarine campaign—Why submarines should be abolished.

For a proper understanding of the part played by the Royal Navy in the Great War of 1914-1918, it should be realized that this was the first major campaign in which the Royal Navy had engaged since the great revolution in naval tactics that has been brought about by modern invention, for the industrial revolution of the nineteenth century, with the tremendous stimulus given to the art of the engineer, the machine maker, the chemist and the ship-builder by the application of science to mechanics, brought about a similar revolution in all the navies of the world. To these navies the stimulus of invention had brought the modern guns, torpedoes, and other weapons, armour-plate and high explosives, so that although the great principles of strategy in warfare remain unchanged through the ages, and indeed are unchangeable, the application of these principles has in comparatively recent years changed profoundly.

A hundred years of peace had also seen the development of the new colonies, the exploitation of the great resources of the New World, and enormous increase in sea-going commerce under our own and other flags, and profound alterations in the manner in which this commerce at sea was conducted.

All these factors produced entirely novel conditions in the methods of applying the old strategy to the new situation in which the outbreak of war found us. Furthermore, the population of these islands had increased fourfold since the last great naval war in which the British Fleet had been engaged; and through a higher standard of living, an increase in manufacturing equipment depending on overseas supplies of raw material, and decline in agriculture, the country was more than ever dependent on overseas supplies for its prosperity and even for the life of its inhabitants; so that whereas in all our previous wars on the Continent we had sent comparatively small armies and relied for the land part of the campaign on the assistance of allies, whom we frequently subsidized with money, in the Great War we had mobilized the whole of our available manhood before it was over and maintained the largest army that has ever left these shores on the continent of Europe, in addition to very considerable armies in other theatres of war; and we continued to subsidize our Allies with money just the same.

Lastly, the new weapons themselves, the fast cruisers and destroyers, the submarines, aircraft, torpedoes and mines, long-range guns of immense power, all complicated the problems the British Admiralty had to solve.

During the previous hundred years the Navy had been engaged in one serious war, in the Crimea; but it was only then just emerging from the sailing-ship era, and the weapons used were still comparatively primitive. Our ships had been engaged in numerous colonial expeditions; the sailors had taken a part in the South African War and the Indian Mutiny on land, and many other comparatively minor affairs; but the Fleet with which we waged the greatest war in all history had never been tested in battle under modern conditions against a first-class power. So unknown were the conditions that both the Germans and ourselves were agreeably surprised after the Battle of Jutland to discover that no unsuspected novelties in weapons of destruction had been produced by the other side.

The only fighting on the great scale in which modern navies had been engaged was at the beginning of this century during the Russo-Japanese War, and some valuable lessons resulted from the

naval engagements in that war; but the submarine had not appeared, there were no aircraft, and long-range gunnery had not been developed to its present pitch. There were, therefore, still many unknown factors.

Nevertheless, the broad strategical plan of campaign drawn up by the Admiralty, in conjunction with the commander-in-chief designate, was that followed in previous wars.

The functions of a war fleet are comparatively simple. They are to win and retain command of the seas. This command was obtained, though it was disputed by the enemy in certain limited areas near his own coast. In their turn the Germans obtained, and retained, effective command of the western Baltic during the whole war, while the Russians controlled the eastern basin of the Baltic. But, outside that inland sea, Britain and her Allies exercised effective command in all the oceans of the world. The entirely new factor introduced by the submarine made this command of the seas less effective in one particular, in that it made the defence of our own commerce and the commerce of our friends more difficult—so difficult, indeed, that at one time we were in imminent danger of losing the war through the entire cutting off of our supplies.

Again, one of the results that flow from command of the seas is the prevention of invasion. And though the only armed men to land on British soil during the whole war was the crew of a Zeppelin forced to earth, who were very glad to surrender to the local postmaster, for fear of the populace, this new factor in warfare, the aeroplane and the airship, enabled minor invasions in the form of raids by air to be effected. The conquest of the air has thus made Great Britain no longer an island but a part of the mainland of Europe, in the military sense, yet this is not the fault of the Navy, and the function of defence against air attack, if there be any such defence, rests with the Air Force.

The first naval lesson of the Great War is really an old lesson relearned. It is that command of the seas not only prevents invasion by sea of the territory of the nation exercising it, but also enables it to use the seas for the transport of its own troops and to keep them supplied with necessaries. This freedom of

movement for one's own troops, however, and ability to prevent the passage of enemy troops by sea, are by no means the only advantages that follow from command of the seas, and the test of the correctness of the old doctrine of the command of the seas is whether the advantages that go with it still obtain.

The naval conduct of the war from Whitehall has been much criticized and will continue to be criticized. Fierce controversy has raged and will rage over this or that aspect of strategy, and over this or that naval engagement. It is perfectly true that blunders are made in every war by both sides. It is usually the belligerent who makes the fewest blunders who wins in the end. It is also true that the conduct of the naval campaign by the British Admiralty was not free from error. But the old policy of obtaining and keeping command of the seas was followed out, and an impartial examination of the facts will show that it was effective.

In addition to freedom of movement for troops, can one's own commerce, under modern conditions, use the seas; and are the sea routes denied to enemy commerce by the power which holds command of the seas? The answer is yes—with certain qualifications.

Such command was exercised during the whole of the Great War, and was in the end effective in achieving victory through the very means described.

As already stated, the largest British Army that we ever placed in the field, or are ever likely to place in the field, was transported to the continent of Europe. Considerable troop movements took place to whichever theatre of war was desired, such as the Dardanelles, the Balkans, Egypt, East Africa, etc. These armies were maintained in the field, reinforced, supplied with munitions, stores, and everything else required.

The Central Powers, on the other hand, were unable to move a troopship or to supply their scattered land forces abroad with a tin of corned beef or a box of small-arm ammunition. One of these scattered German forces, under von Lettow-Vorbeck, held out in the jungles and mountains of East Africa until after the Armistice. But the only supplies he ever received were some cases of small-arm ammunition sent to him by a Zeppelin. A few attempts were made to send isolated smugglers

to run the blockade and supply munitions to the German forces in East Africa ; but none of their cargoes reached the German troops.

Germany started the war with a fortified naval base at Tsingtao in China, where was stationed a considerable cruiser squadron. The German cruisers took good care to escape from Tsingtao before war was declared, and the Japanese, with some assistance from our forces at Hong Kong, proceeded to invest and besiege the German fortress. It was eventually captured, as it was bound to be ; because any attempt at relief from Germany was entirely out of the question, owing to British command of the seas.

There were a few "tip-and-run" raids by battle-cruisers when English watering-places on the east coast were bombarded ; but these were only pin-pricking tactics and had no sort of effect on the conduct of the War, except to induce the War Office to keep far too many troops and guns in England for home defence when they would have been better employed in France and Flanders. But no combined operations with the employment of troops were attempted against our territory ; and, indeed, no expedition of this sort was even prepared.

As for the use of the trade routes by our own commercial shipping—it is a fact that a very heavy trade was maintained, the population of these islands and France were fed, our armies and the armies of our Allies supplied, and, indeed, the wealth and resources of the whole world drawn upon for the prosecution of the war.

Within a few weeks of the outbreak of war, on the other hand, the German mercantile flag had disappeared from the oceans of the world with the exception of the Baltic Sea. The ocean trade routes were denied to German shipping from then onwards. A few raiders at the beginning of the war had done considerable damage to Allied shipping, but they were eventually accounted for, and although a few more escaped from Germany and did considerable damage, the trade routes were never denied to our shipping. I shall refer to these raids and their lessons, which are important, and also to the very menacing submarine campaign which developed during the later stages of the conflict. But

the fact is that, despite the enormous damage they did, the submarines did not prevent the defeat of the Central Powers, and the most that can be said for this extraordinary development of war on commerce is that it only succeeded in postponing the final conclusion of hostilities.

Regarded broadly, therefore, the old doctrine of command of the sea, and the advantages that follow from it, was justified once more. Indeed, the blockade, gradually developed and perfected, and applied to the Central Powers by all manner of means, such as the control of cables, the rationing of neutrals and other comparatively novel methods, but all resting on the sanction of superior sea power, played a very great part in hampering the conduct of the war by the armies of the Central Powers, and in breaking down the morale of their civilian populations.

Therefore, although there were many strident voices raised in criticism of the British Admiralty and the British Fleet during the war, and although there have been many harsh things said about certain combats that took place, the broad fact remains that the Royal Navy justified itself, made the victory of the Allies possible, and reinforced the doctrine on which it had been built up and on which its strategy was founded.

If, on the other hand, the German Navy had been strong enough to wrest the command of the seas from the Allies, which, in practice, meant from the British Navy, the war would very soon have ended in a complete victory for the Central Powers. Communications between England and France would have been cut, and the British Expeditionary Force on the mainland of Europe would either have had to have been withdrawn, or would have been beaten and forced into surrender. France and Italy* would certainly have been overwhelmed and Russia driven out of the war far sooner than she was. The United States would not have intervened, for the Germans would not have been driven to the excesses of the submarine campaign and other extravagances which ultimately brought America into the war on the side of the Allies. Britain would have been starved into surrender, and many of her colonies open to attack would have fallen like ripe plums.

Indeed, substitute German command of the seas for British

command of the seas in the Great War and the Allies would probably have been defeated within a year, and certainly within two years. But the command could only have been exercised if the Central Powers had had great naval superiority, as the Allies had, and if we had not ventured to challenge it in battle; or if a German victory, or series of victories, had been won at sea which annihilated the Allied navies and our own Fleet in particular.

For the second lesson to be drawn is that, again under modern conditions, very great preponderance of sea power is required to exercise effective command, for I shall show how, on the one hand, modern weapons, such as the submarine, make effective blockade more difficult, and on the other hand, how these same modern weapons enable great damage to be inflicted on the Power holding command of the surface of the seas. It may be that a new technique will be evolved, making it possible to prevent submarines getting to sea; or, if they are at sea, either destroying them or preventing them from doing much damage. The nearest we got to this was a minefield across the North Sea to hamper submarines trying to get out into the Atlantic, and the convoy system to prevent them doing so much damage when they did slip through.

The time-honoured method of exercising command of the seas was by means of a close blockade, and this system was very nearly brought to perfection during the Napoleonic Wars. Fast sailing frigates were stationed off the ports where the enemy ships were lying, and farther out at sea cruised the British ships-of-the-line.

The blockaded ships could not proceed to sea without the grave risk of being brought to action, and in the drawing up of the early plans for war with Germany it was intended to follow much the same methods. Furthermore, it was intended to seize the Island of Borkum in the Heligoland Bight and use it as a defence base for a close blockade of the German ports in the North Sea. Indeed, two of our officers attached to the Intelligence Division were seized while reconnoitring this island and its neighbourhood and imprisoned as spies some years before the war. The Germans by this discovery appear to have got wind of our plans,

and Borkum and other islands along the German North Sea coast were all heavily fortified. In any case, the growing menace of the torpedo, the lessons of the dangers of submarine mines, learnt in the Russo-Japanese war, and the coming of the submarine-boat, led to the abandonment of the idea of close blockade some years before 1914.

The modified plan was to keep the Grand Fleet in the North Sea cruising slowly, to conserve fuel, out of the supposed range of night attack by the German destroyers and torpedo-boats; and this was actually done during the first few weeks of the war, until the torpedoing of the *Cressy* and her two consorts drew attention to the cruising prowess of modern submarines.

The plan of blockade was then subjected to still further modification. The main Fleet was kept at Scapa Flow, while the battle-cruisers, under Admiral Beatty, remained in the Firth of Forth. Later, when the defences at the Firth were completed, the Grand Fleet used it as a base as well. Both forces went to sea at intervals, or when news of the enemy fleet having emerged from harbour was received.

A strong force of light cruisers and destroyers, under Admiral Tyrwhitt, was stationed at Harwich, and there was another flotilla at Dover, backed up by older battleships and cruisers. The commercial blockade of Germany under this naval cover was exercised by the tenth cruiser squadron, consisting principally of passenger liners mounting guns and commissioned as cruisers working on a patrol line between the Shetlands and the north of Norway. All vessels proceeding across the Atlantic to and from Europe were intercepted by this patrol, and if suspected of carrying contraband were sent into harbour for search and examination. The destroyers of the Grand Fleet performed similar duties in the sea passage between the Orkneys and Shetlands, and there was a close patrol across the Straits of Dover.

The commercial blockade was reinforced by a series of measures used in war for the first time. Thus the Allies took advantage of their control of bunkering facilities to refuse supplies of coal to neutral merchant ships that were on the Black List—that is, suspected of trading with the enemy. It was very difficult after a few months for neutral shipowners to carry on any trade

with Germany, for they could not obtain coal for their voyages.

And the Black List and White List systems were elaborated still further. Neutral shipping companies and organizations of neutral traders, such as the Netherlands Overseas Trust, guaranteed to the Allies that the goods carried to their respective countries should not be passed on to enemy territories. In some cases a substantial deposit of money was made as a guarantee.

The British consular officers abroad supervised the loading of neutral ships bound for Europe and granted or withheld certificates. Vessels on the White List, once identified by the patrolling cruisers, were passed through without further interference, but ships without these safe conducts had to undergo the inconvenience and delay of being searched in harbour; and if any of their cargoes were identified as contraband they were condemned in the Prize Courts. Not only was this system of guarantees made with bodies of traders in the neutral countries with seaboard and shipping, but merchants in inland Switzerland were glad to be able to obtain goods through Italy and France under similar engagements not to allow them to go through to Germany.

The most drastic, and also novel, method introduced into this modern system of blockade was that of rationing the neutrals. Norway, Sweden, the Netherlands, Denmark, were only allowed to import their normal peacetime requirements of any goods, foodstuffs or commodities which might be useful to Germany.

A similar system was organized in the Mediterranean, Turkey being blockaded by our squadron in the Levant, while the Adriatic Sea and its Austrian trading ports were closed to commerce by patrols across its entrance. These methods were gradually elaborated and applied, and the contraband list itself was continuously extended. As Germany and Austria had mobilized practically the whole of their populations for war service, any kind of goods or foodstuffs for their comfort and sustenance were eventually treated as contraband. Thus, since both fats and cotton are necessary for the manufacture of explosives, both were placed on the contraband list for this reason, apart from their value for the manufacture of food and clothing. Yet all these measures could only be applied by the Allies because

of their command of the seas. This command was the ultimate sanction. There was, in any case, especially at the commencement, considerable trouble and friction with the United States. So long as America was neutral her merchants, or at any rate those not in active sympathy with the Allies, were anxious to sell their goods in the best markets. And there was much resentment, fanned by German and Austrian propagandists in the United States, against the gradual tightening up of the blockade. Indeed, on several occasions an acute diplomatic situation arose between the Allies and America.

But it should be noted that these extraordinary measures for cutting off the trade of the Central Powers with the outside world was only possible because of the number of belligerents engaged in the war. It would have been a very different story if, for example, only Britain and Germany had been engaged in a war against each other. And too much reliance in the future, therefore, cannot be placed on the blockade weapon. I shall deal with this matter in some detail in a subsequent chapter, because of its great importance in the future.

Let us now turn to the first phase of the German war on commerce. The Germans, deprived of command of the seas, attempted to retaliate against the blockade by the indiscriminate laying of mines on the high seas (itself an illegality), and later by the torpedoing of merchant ships without any formality of visit and search as demanded by well-established international law. If there were certain illegalities in the Allied blockade, the German submarine campaign offended against the very laws of humanity, and eventually aroused far more resentment than all the restrictions on trade enforced by the Allies. The torpedoing of American merchant ships, the drowning of their crews and passengers, the discovery of German plots in Mexico, partly through the decoding of intercepted German wireless messages, and the culminating outrage of the torpedoing of the *Lusitania*, in which a hundred American citizens lost their lives, finally caused the United States to intervene in the war against Germany.

At the beginning of the campaign the Germans, as stated above, had a squadron in China under Admiral Count von Spee, based at Tsingtao, and consisting of two armoured cruisers and

some light cruisers. Very wisely, the German admiral decided not to be bottled up in Tsingtao, and he therefore evacuated the port on the eve of war. He kept his squadron together as a tactical unit and disappeared "into the blue", coaling from German colliers sent previously to rendezvous amongst sparsely inhabited islands in the wide Pacific, and he did not bother himself about commerce destruction. He met and defeated a weaker British squadron of old ships under Admiral Craddock, off Coronel, took a few merchant ships as prizes off the west coast of South America, and met his own doom when he attempted to attack the Falkland Islands, and found there Admiral Sturdee's battle-cruisers.

Four independent German light cruisers were detached to attack the trade routes in the Pacific and Indian Oceans. These four ships between them sank 200,000 tons of British shipping and 30,000 tons of Allied shipping before they, in their turn, were rounded up or destroyed.

The *Emden* was the most active and successful of these commerce raiders, and at one time no less than seventy Allied warships were engaged in searching for her or patrolling certain areas where she might have attacked merchant shipping. She met her fate from the guns of the Australian cruiser *Sydney*, which, with some Japanese warships, was convoying Australian troops to the Dardanelles and happened to pick up a wireless signal from the station on the Cocos Islands which the *Emden* had suddenly attacked. The *Sydney* was promptly detached to deal with her, and the last of these German raiders was destroyed.

Later in the war, three German disguised cruisers escaped into the Atlantic at various times. They avoided our tenth cruiser squadron by hugging the Norwegian coast and then slipping through at night without navigation lights. They were camouflaged to look like merchant ships, their guns and their equipment being carefully concealed. The most successful of these raiders was the *Wolf*, which kept at sea for fifteen months, touching at no inhabited land in order that her movements might not be reported. Her bunkers were replenished with coal from captured merchant ships, and she managed to return to Kiel after laying mines off the Australian coast and sinking seven steamships

and seven sailing ships. Between them these three disguised raiders sank 250,000 tons of British shipping and 39,000 tons of Allied shipping.

Now these raids on commerce followed the practice of the old wars, except that the ships were sunk at sea without being sent into a Prize Court for trial as required by international law, and to this extent illegalities were committed.

The second phase of the attack on commerce was the under-sea warfare. The German submarine campaign against commerce, besides being more spectacular and more damaging, was a direct infringement of all established laws of war and humanity. It introduced an entirely new feature into naval warfare, and at one time it imperilled the whole Allied cause. Altogether 6,692,000 tons of British merchant shipping were sunk by submarines. When the German High Command had grown desperate, a so-called war zone was declared round the British Isles and neutral shipping entering this zone was attacked ruthlessly. Altogether there were sunk by submarines, or blown up by mines laid by submarines, 1,716 merchant ships sailing under neutral flags, of which Norway alone lost 929. One-fifth of the Spanish Mercantile Marine was destroyed and more than 100 Spanish sailors killed.

The Danes lost 216 ships, involving the death of 234 Danish sailors; while over 1,000 Norwegian seamen were slaughtered in this inhuman campaign. Later, the submarine campaign against neutral shipping was extended into the distant oceans, the helpless merchant vessels being torpedoed many miles from land and their crews turned adrift in small open boats to seek safety as best they could, or perish by storm or thirst. In one case a German submarine destroyed a Norwegian sailing ship, the *Eglinton*, by gunfire, without warning, and without even giving her a chance to surrender. The crew took to their lifeboat and the submarine then opened fire on the helpless sailors, killing all except one. These abominations disgraced the German naval flag, and no special pleading about reprisals can excuse them.

What counter-measures were taken? I have already described the various methods of attacking submarines; but those

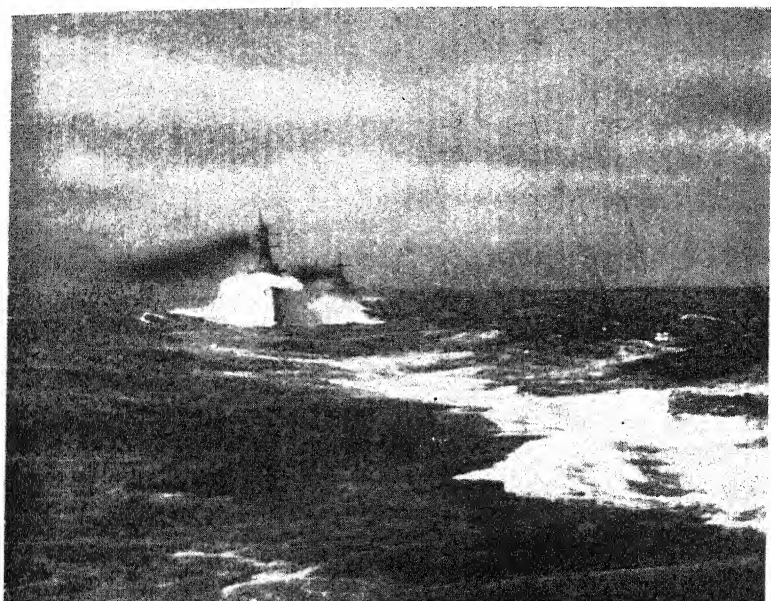
were the tactics employed when their presence has been discovered. The Germans and Austrians lost in all 187 submarines during the course of the war. Some of these were destroyed by accident, but as to the loss of those whose fate in action is known the following statistics are available :

Mines and nets	42
Depth charges	35
Gunfire, including the "Q" ship method, already described ..	24
By torpedoes from our own submarines lying in ambush ..	20
By ramming	8
By air attack	7

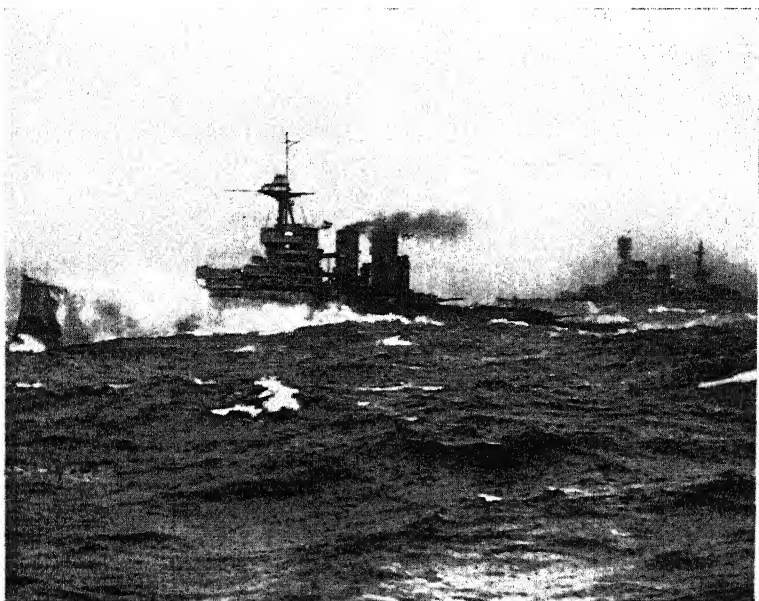
Whenever there was an opportunity of attacking the German submarines it was, of course, taken. And some very fine individual feats of heroism were accomplished. But the strategy was almost entirely defensive. By the end of the war nearly 4,000 surface vessels, great and small, were employed in the anti-submarine campaign. They ranged from large cruisers, escorting the convoys of merchant ships, to minesweepers, and included destroyers and torpedo-boats, armed trawlers, fishing drifters, motor-launches, armed yachts, and the "Q" ships. This immense flotilla was employed in escorting merchant ships, in patrolling certain areas to prevent the submarines operating there, or in watching nets, or in laying mines in areas where it was thought submarines might attempt to pass. This strategy was defensive.

The only offensive action, apart from a few aeroplane raids, was the brilliant attack on Zeebrugge and Ostend in a partially successful attempt to destroy these submarine nests. No strategy of using the immense strength of the Allied navies, even after the United States entered the war, in offensive operations against the German ports themselves was attempted.

Another of Lord Fisher's ideas, during his period of office as First Sea Lord in the war, was to build steel towers which could be towed across the North Sea and placed on the sandbanks off the German harbours. They were heavily armoured and mounted powerful guns as well as searchlights. The plan was, when they were in place, to exercise a close blockade of the German ports



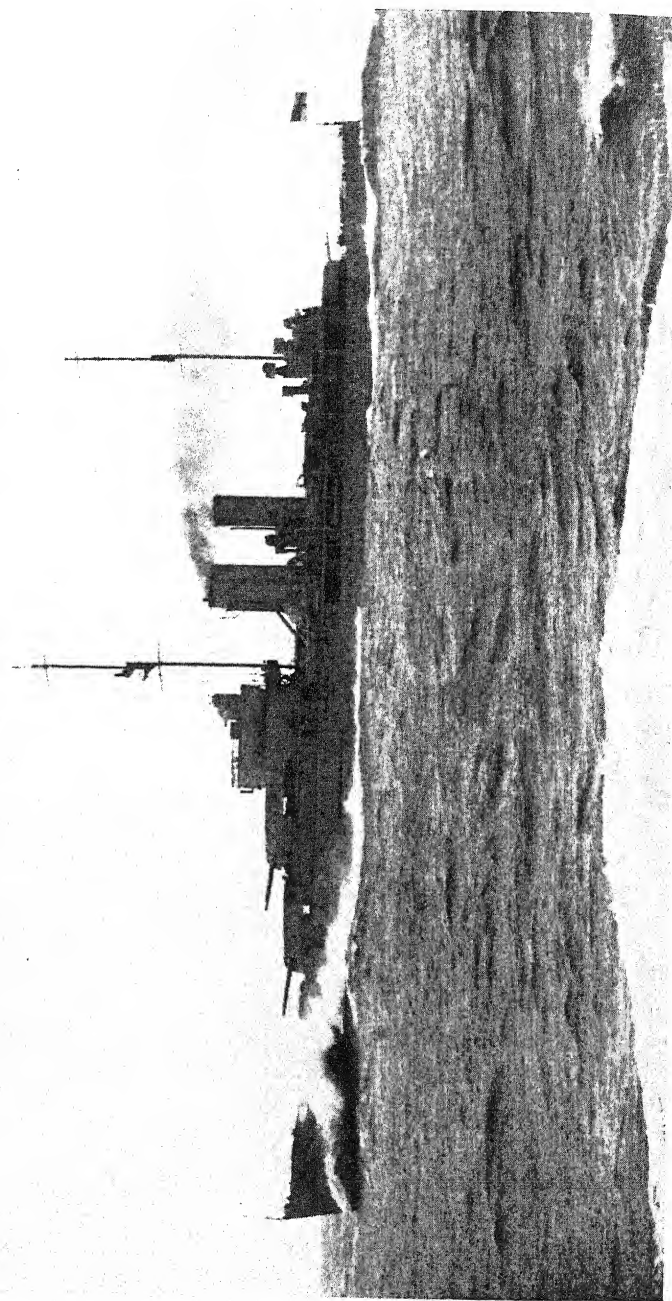
[Abrahams, Devonport



[Abrahams, Devonport

Above : "TAKING IT GREEN" : BATTLE CRUISERS IN A ROUGH SEA

Below : BATTLE CRUISERS "TIGER" AND "RENOWN" ON
PATROL IN NORTH SEA DURING GREAT WAR



H.M.S. "EXETER". "WASHINGTON" TYPE CRUISER

[Cribb, Southsea

from which the submarines put out to sea, for the towers would have been rallying points for our destroyers and other light craft. In the case of the German heavy ships putting to sea, our own ships-of-the-line in the offing would have been called up, and a general engagement have followed. But Lord Fisher resigned, owing to various causes, before his towers were ready. His plan was abandoned, and if the war had lasted longer they would, on completion, have been placed in the Straits of Dover to aid the patrols there in the task of preventing the German submarines from passing through into the English Channel and the Atlantic. These were the mystery towers, the construction of which at certain south-coast ports raised so much speculation at that time.

Another proposal, which was seriously considered, was the laying of extensive minefields, close in to land, off the German ports, and then patrolling them on their seaward sides to prevent the Germans from clearing passages through the fields with their minesweepers. The patrols would have been reinforced by cruisers and the cruisers by battleships, and the Germans could only have driven them off at the risk of a general engagement with the stronger Allied Fleet.

This proposal led to the plan, which was eventually adopted, of laying an immense minefield from the Scottish coast to Norway. There were certain passages through it which we guarded by warships, and it served a double purpose. It made the passage of German submarines into the Atlantic round the north of Scotland more difficult and perilous, and it helped in controlling merchant shipping, and so tightening up the blockade.

But the most effective means of all, though it was purely defensive, was the resort to the old method of convoy, which should have been introduced much earlier in the war; and if this had been done we should have suffered far fewer losses from the German raiders already referred to, while the submarine campaign would not have wrought such havoc.

The convoy system had come down to us from the old wars of the sailing-ship days. Even after the battle of Trafalgar, when the British command of the seas was unchallenged, the French privateers, operating in fast sailing ships, were almost

as great a nuisance, comparatively speaking, as the enemy submarines in the late war. The convoys were made up of fleets of merchant ships collected for the purpose, and escorted by war vessels in such strength as to be fully prepared to beat off any probable attack.

For long the Admiralty was urged to readopt the system, but hesitated for many reasons. One of these was the inconvenience at the home ports caused by the simultaneous arrival of a large number of merchant ships, which it was felt would lead to great congestion and delay. Another reason was the fear that the convoys themselves would offer easy targets to the torpedoes of the submarines, and a third that the merchant captains, unused to sailing as a fleet, would not be able to keep in station without collision and accident.

The first objection was overcome by good organization at the ports; the submarines hesitated to attack the convoys with their escorts of well-armed ships, including destroyers with depth charges; and the masters of the merchant ships picked up their new duties with unexpected facility.

It was indeed a wonderful sight to see a convoy of merchant ships, perhaps ninety in number, and including seven or eight different nationalities, at sea with two or three destroyers scouting round them at high speed, a light cruiser or specially armed liner heading the armada, and one or two armed trawlers, manned by deep-sea fishermen, bringing up the rear. The developments of the modern convoy system was one of the marvels of the war, and it was forced on a reluctant Admiralty by the politicians, who in this respect were right when the Admiralty was wrong—and not for the first time.

I must refer also to the very gallant efforts of our destroyers and submarines, who used to press close into the German coasts at night and lay mines in the deep-water channels leading to them. Some of these mines had a timing apparatus which caused them to lie close to the bottom for periods varying from a few hours to several days; so that when the German minesweepers had swept the passage and reported all clear, they would float near to the surface and catch the unsuspecting submarines proceeding to sea on their work of destruction.

By all these methods the sinking by submarines was gradually reduced, though losses were suffered right up to the Armistice. Great numbers of new merchant ships were hastily built wherever a shipyard was available; and though the civil population of Britain and her Allies suffered some privation and were pretty severely rationed, our armies in the field never went short of munitions and supplies through inability to carry them over the seas, and we were able to dispatch expeditions and reinforcements by water to any part of the world as required.

One other offensive plan was made by Lord Fisher, though never carried out; and a second was made by Mr. Churchill and actually attempted, though it failed for various reasons to which I shall refer.

The first was the great scheme for carrying the war into the Baltic; and the second was the attempt to force the Dardanelles.

Fisher was not in favour of the Dardanelles expedition, because it threatened to use up more and more of the reserves that he had planned to employ in the Baltic. Little is known of the plan, because Admiral Fisher believed in the autocratic system of command, and in this respect was like that other great warrior of a bygone age, Lord Kitchener. By the autocratic system I mean that the general or admiral at the top, in this case the First Sea Lord, worked at his plans almost single-handed, only employing staff officers to ferret out figures and compile tables for him. Modern warfare is too complex, and the forces employed too great, for this system to be successful except under very favourable circumstances, which must include a genius to carry it out. Fisher was a genius in his way, but he was becoming an old man.

The alternative system is to employ a trained staff to work out war plans, sometimes for years beforehand. The great German masters of strategy had perfected this system in the past, and it has now been adopted in every modern fighting service, including the Royal Navy. One of its many advantages is that the plans are thoroughly understood and, indeed, have become a doctrine amongst a number of officers, and well in advance of hostilities. If one of the officers concerned needs to be employed elsewhere, the plans are not affected.

In the case of Admiral Fisher's Baltic plans, when he felt himself compelled to resign nobody else really understood them; and, indeed, little has become known about them even to this day. But the broad intention was to force a way into the Baltic and to use the superabundance of Russian troops for landing along the coast of Pomerania within comparatively easy striking distance of Berlin. It was perfectly sound strategy, for it took advantage of our superior naval strength to obtain command of the Baltic Sea and to use sea means of transport for descents on the enemy's coasts. These can be particularly troublesome, because the enemy never knows where the next blow will fall.

For this purpose Fisher had designed, and actually built, three large, very fast, heavily armed battle-cruisers, the *Courageous*, *Glorious* and *Furious*. They were only lightly armoured, and have since been converted into aeroplane-carriers by Fisher's successors, who could not comprehend his strategy. And large flotillas of special craft for landing purposes were also to be built. The whole scheme was abandoned with Lord Fisher's retirement.

Before referring to the Dardanelles campaign, I would mention two other offensive operations that were planned by the nucleus of a war staff which was created during the worst period of the submarine campaign. One was to have been an assault on Heligoland, employing all the immense reserves of naval strength, practically unused, in the American, French, and Italian navies, in addition to our own reserves. Even the Japanese could have spared some large battleships. All these navies had powerful squadrons of pre-dreadnought battleships which, though they would have been outmatched by the latest types in a fleet action, could have done very good service in this connection, and, indeed, did good service at the Dardanelles. It would have been possible to have so bombarded and smothered Heligoland with high-explosive, and especially with gas shells, as to have made it untenable; and then, under cover of smoke clouds, to have taken it by assault. The Grand Fleet would have dealt with the German High Sea Fleet if it had made a sortie.

With Heligoland captured and held, methods for preventing the German submarines from emerging could have been made

more intensive, though we might have had to violate Danish neutrality for the complementary operation of mining and holding the Great and Little Belts at the entrance to the Baltic. This plan was examined and rejected principally because of the lack of an offensive spirit such as would be necessary for the employment of the new weapons of war, but which had not been developed in the Admiralty during the previous hundred years of peace.

The other plan, on a more modest scale, was rejected partly for the same reasons and partly because of the even more scandalous cause of inter-Allied jealousy.

When Lord Allenby's Army was advancing northwards into Palestine from Egypt, and fighting many hardly contested and bloody battles, the obvious strategy was to strike at the Turkish flank and rear from the sea by descending upon the coast of Syria. There was practically no naval opposition to be expected from the Turks. A few cruisers and monitors, with strong landing parties of picked troops, would have been of the greatest assistance in hastening the defeat of the Turkish forces in the field. This kind of raid was carried out with great success by the British naval leaders in the Napoleonic Wars, and is a form of amphibious operation peculiarly suited to the British genius. Indeed, if amphibian operations are not engaged in, one of the advantages of command of the seas is thrown away.

However, in addition to the painful lack of a real fighting spirit, especially with regard to anything that was thought to be new or novel, in the high councils at the Admiralty, there were political difficulties with our French Allies. Syria had been marked out as a French sphere of influence, and was to become French territory or a protectorate (as it has since, under the mandate) in the event of an Allied victory. The French Government insisted, therefore, that any troops landing in Syria must be Frenchmen. Cyprus was, of course, the obvious base of operations for these descents on the Syrian coast, and there the French proposed to send some battalions of territorials which they said were all they could spare from the Western Front.

Now the French territorials are mostly bearded grandfathers ; and though, no doubt, their hearts were stout, their limbs were

stiff, and they were hardly suitable for the kind of operation in contemplation ; so this scheme fell through.

Nor must these proposed plans be judged only by the great combined operation that was undertaken against the Dardanelles. Several books have been written about the Dardanelles campaign, and it has been the subject of a special Commission of Enquiry. The true history of war is only written many years afterwards, when the principal participants and senior leaders have died quietly in their beds—as usually happens. But I believe that historians of the future will agree that the conception of the Dardanelles campaign was thoroughly sound. It was a use of our command of the sea, by which we were enabled to transport troops and supplies with greater ease than the Central Powers could by railway. It struck at the weakest of the three nations in alliance with Germany. If successful, it opened a way through to the Black Sea, thus facilitating the supply of Russia with munitions, and the obtaining of Russian supplies of wheat, oil, and other necessities.

But if the conception was sound, the execution, despite the gallantry of the actual combatants, was wretched. To put matters briefly, the whole project should have been thought out and the necessary plans made before ever war broke out. We always knew there was a possibility of Turkey coming into the war ; though if the German battle-cruiser, the *Goeben*, had not been allowed to escape to Constantinople, and if our diplomacy had been more alive, and—dare I say it ?—if the Secret Service funds had been a little more substantial, Turkey might have been kept neutral.

But there was really no excuse why detailed plans of operation against the Dardanelles should not have been in existence at the Admiralty and War Office. Even so, if troops had accompanied the first naval assault, the famous peninsula could have been occupied with trifling loss. For a naval force was sent to bombard the forts at the entrance to the historic Straits, silenced them, and landing parties of marines, with practically no opposition from the bewildered Turks, then marched all over the very hills which were the objective of the gallant forces that afterwards spent their blood uselessly in attempting their capture.

Indeed, the peninsula that guards the northern side of the Dardanelles was actually taken by naval forces alone ; but there were no garrisons available to hold them.

And then, when the great expedition had been collected, and eventually arrived, all the world knowing of its objective, the Turks, under German direction, had been able to garrison, fortify and prepare their defence of the very same area. In the event, the assault on the Dardanelles was a glorious failure ; and this was the last great offensive operation that the British Navy was allowed to attempt in the war.

The rest of the war was spent in waiting for the German large ships to come out and fight, the only major action being the battle of Jutland, and in the long, exhausting warfare against the new weapon—the submarine.

To sum up the strategy of the Great War at this stage, it was sound enough if it had been fought under the old conditions with the old weapons, though, perhaps, over-cautious ; but with the new weapon of the submarine playing so great a part and so greatly hazarding the shipping, Allied and neutral, on which the conduct of the great land campaigns depended, it was unsound in that no methods were attempted for keeping the submarines from actually getting to sea.

Now why were all these things not thought about in advance, and plans and alternative plans prepared ? There was no real reason why the capabilities of the submarine should not have been known beforehand. The British and the Germans each had considerable numbers of submarines, and the later ones, built during the actual course of the war, were not a very large improvement upon those already in commission in 1914. Indeed, much of the damage done to merchant shipping in the war was accomplished with submarines built before it and actually in commission when hostilities broke out.

There is, however, this to be said, that the German Admiralty itself did not fully appreciate the potentialities of the submarine weapon. When I met German naval officers after the war and compared notes with them, I heard, amongst the younger men, loud complaints against the lack of foresight of their own Admiralty chiefs ; but then, the premier German service was the Army,

and the Navy, despite the Kaiser's fostering care, was only secondary. The German Great General Staff was far more powerful at the seat of Government. Many of its most eminent members considered that the money and effort spent on the Navy were wasted, as it withdrew a corresponding financial support and strength from the land forces.

But with us the Navy was foremost, and without a successful naval campaign we could not hope to escape defeat.

The truth is—and it contains another of the great lessons of the war—that we had no naval staff, in the real sense of the term, and we only had the beginnings of it after the war had been raging for two years.

There was a large naval personnel at the Admiralty, but all were engaged, with the exception of the First Lord himself, in day-to-day administrative work. All major decisions had to be taken by the Board, which consisted of the First, Second, Third and Fourth Sea Lords, their political civilian chiefs, and the Civil Service Secretary. The First Lord himself has nearly always been a civilian. There was a kind of unwritten taboo against a naval officer becoming First Lord, broken at last, after half a century, by the appointment of Commander Sir Bolton Eyres-Monsell as First Lord in the National Government of 1931.

The Second Sea Lord is responsible for the personnel, the Third Sea Lord for the dockyards and naval bases, and the Fourth Sea Lord for equipment and supplies. All these were extremely hard worked and immersed in their routine papers.

The First Sea Lord, nominally freed from administrative duties, usually becomes engaged in the day-to-day problems, and under the old system this was even more true in war than in peace. There was, and is, an Operations Division, but it was engaged in day-to-day work. There also was, and is, an Intelligence Division for collecting information; and when it had a brilliant chief like the late Admiral Prince Louis of Battenberg, afterwards Marquis of Milford Haven, it engaged in a modest manner in planning future operations in the event of war. But this was not its real function. To show how unsuitable was the Board of Admiralty, as such, for the preparation of war plans, or

even the execution of them, however admirable for ordinary naval administration work in time of peace, let me cite the case of the Second Sea Lord at the outbreak of war. This was Admiral Jellicoe himself, who promptly left the Board to hoist his flag as commander-in-chief of the Grand Fleet, and his successor then had to begin all over again.

When the war broke out, and, of course, prior to that, with the exception of the First Sea Lord there was no single person engaged in the duty, or with the opportunity, of thinking out plans for future operations. The result was that we were usually a move behind, and the enemy was nearly always able to take the initiative. A few raids into the Heligoland Bight and the Dardanelles operations were the only actions in which we were allowed to take the initiative for the first two critical years. The result was that we were always placed on the defensive.

After the German submarines had emerged we would try to find them, destroy them, and in any case prevent them from attacking merchant ships or warships. But the anxieties of these days left little time for working out plans in advance.

A simple example will illustrate the evils and dangers of this situation. When the United States intervened in the war in favour of the Allies, with her powerful fleet only too keen to be of use in the common cause, there were no plans ready in London for its employment. No one at the Admiralty had had time to think how it was to be used and what assistance the Americans could give, though they added at least thirty per cent. to the striking power of the Allied naval forces.

The powerful French dreadnought squadron in the Mediterranean, with its modern cruisers and excellent flotillas of destroyers, was never used at all; though later the French light craft were used for convoy duties and patrolling against submarines. The French were quite willing to co-operate, as the Dardanelles campaign showed; for there some older French battleships did good service, and two of them were sunk. But one of the first principles of strategy is to concentrate all the available forces in the decisive theatre of war. All the French superdreadnoughts and their attendant craft should have been with the Grand Fleet.

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When I joined the Admiralty War Staff, in the newly formed

plans division, I had this matter raised once more. The official excuse was some blather about the French ships not having efficient distilling apparatus, and their consequent inevitable difficulty over the fresh-water supply. Supposing this excuse was valid, a few extra water-tank vessels could easily have been improvised for the purpose.

It was the submarine campaign that caused a change in the organization at the Admiralty to be made, and the third necessary division of the War Staff was created at last.

A War Staff needs three main sections—operations, intelligence, planning. The Operations Division conducts the actual day-to-day movements and dispositions of the ships and forces as required. The Intelligence Division obtains all the information it can in every manner possible and supplies it to the other two. The Planning Division, as its name implies, prepares future plans, both for what is actually to be done and for what may have to be done.

Thus, a Planning Division, if it had been in existence before the war, would have not only drawn up plans of operations for all the eventualities of a war with Germany, but also such alternative plans as would be necessary if we had had to fight other Powers besides Germany; others, again, according to the Allies we had, and so on. For example, it was generally supposed that England, France, Belgium and Russia would fight Germany, Austria, and possibly Italy. The entry of Turkey was a possibility also; though it was uncertain whether she would intervene on our side or on the side of the Central Powers.

Italian intervention in the war in favour of the Allies was unexpected beforehand. The American intervention had been foreseen some months before.

With a great flourish of trumpets Mr. Churchill announced, about eighteen months before the war, that he had created a War Staff. But it really only consisted of messengers and clerks, though some of them held responsible naval rank. The real idea of a staff was absent.

In the simpler bygone campaigns the Sea Lords at the Admiralty and the commanders-in-chief of the Fleets conducted their own strategy. Events moved slowly, like the ships themselves. Everything was simpler, including the whole mechanism of war.

Nowadays a staff, to be of real value, must develop a doctrine ; and this is the result only of years of study and discussion. Plans of campaign depend on the doctrine, and it is difficult to improvise either at short notice.

This lesson has been learnt. The naval staff is now organized on modern principles and is evolving a doctrine suitable for modern conditions.

But to return to the late war. The first germ of a Planning Division was the setting up of a section of the Operations Division known as the Offensive Division, for the purpose of working out and preparing offensive plans. Its very name shows the confusion of ideas ; for all war should be offensive, especially if one has the numerical superiority. Purely defensive tactics hardly ever succeed in the long run. Even this little staff was forced on the Admiralty by the politicians, and it had to fight for its existence every hour of the day in the beginning. Its name was presently changed to the Plans Division, and it has survived till the present time, and is now a prominent part of the Admiralty organization.

The writer was one of the first six officers chosen from sea-going ships for this duty, and he spent a hectic five months while this little committee was trying to make up some of the leeway. Fortunately, we came directly under the wing of an additional Sea Lord, Admiral Sir Rosslyn Wemyss, nominated as assistant First Sea Lord and deputy chief of the naval staff, the first Sea Lord being chief of the naval staff. Admiral Wemyss' seniority and his attainments enabled him to back up the infant division and see that the plans worked out received proper attention.

It was the Plans Division* which prepared the assaults on

*Our plan considered for assaulting Zeebrugge and Ostend was to land tanks on the coast on either side of them to close in on the two towns from the back. I was sent to interview Colonel Sir Alfred Stern to find out if tanks could be built to negotiate a few feet of water. Stern was in charge of the tank trials and experiments. He promised that this type of tank would be built. The idea was to fit up old tramp steamers with cut-away shaped bows to run close inshore on the sandy Belgian coastline. The tanks would be carried in their holds and the ships would be fitted with drawbridges to be lowered on to the sands, the tanks then to trundle over these bridges, and so ashore. In the meantime the warships would be bombarding and smoke-screening and indulging in every kind of devilry against the shore batteries. But we could not get this plan adopted. Nelson had never used tanks, so how could we ? In the event, the gallantly executed attacks on these two submarine nests were only partially successful. I had been promised release from the Plans Division to participate in these operations. But instead I was sent off to the Mediterranean to help organize the first convoys. Very annoying at the time ; but it probably enabled me, among other things, to live to write this book.

Ostend and Zeebrugge ; and it also prepared plans for entering the Baltic and assisting the hard-pressed Russians, before the second revolution of October 1917 took Russia out of the war and prolonged its duration.

We eventually succeeded in having the convoy system adopted, which reduced the sinking by submarines and saved the situation. We were unable to have our plans for close mining in the Heligoland Bight, to prevent the Germans getting to sea, accepted ; but we did succeed in having the great mine barrage laid across the North Sea from Scotland to Norway, already referred to.

If only the Plans Division had been in existence and the whole idea of a real staff accepted in the Navy prior to the war, the course of the campaign might have been different ; but I would here repeat that mistakes are always made in war, and that the Germans for their part certainly made plenty.

Turning aside for a moment to the land campaign, what a blunder it was for the Germans to try and force their way through Belgium ! This made the intervention of Britain, with the largest naval fleet and the largest mercantile marine in the world, almost inevitable. And though we would probably have come into the war later, it was the first few weeks that mattered most.

But in the purely naval sphere, what blunders the Germans perpetrated ! If they themselves had understood the use of their own submarines they could undoubtedly have ambushed the Grand Fleet in the early days, when it used to cruise up and down the North Sea at slow speed, within submarine striking distance, with the ships not zigzagging and without a proper screen of destroyers. And then the Germans frittered away the advantage of surprise with this weapon by the sinking of the three old armoured cruisers, the *Cressy*, *Hogue* and *Aboukir*, in the southern part of the North Sea.

When the Grand Fleet was ordered by the Admiralty in a panic to take refuge in Lough Swilly, on the north-west coast of Ireland. what an opportunity the Germans lost ! They knew the Grand Fleet was temporarily "off the map", because they actually sent a submarine round the north of Scotland to lay a minefield off Lough Swilly, on which minefield the superdreadnought *Audacious* was sunk ; so they knew our ships were there. A bold

strategy then should have sent the High Sea Fleet to sea from the Elbe to steam straight for the Straits of Dover, force its way through and hold up our communications with France. They would, of course, have suffered losses, and they might have been brought to general action before they returned. But, on the other hand, they might have escaped general action by getting back at night before the Grand Fleet could cut them off; and even to have held up our cross-channel traffic for a week and bombarded all the embarkation ports on the English and French coasts would have been a very useful operation from their point of view, and would have inflicted both material and moral damage on the Allied cause.

But their greatest blunder was the use of their submarines against merchant ships, and especially against neutral merchant ships. As I have detailed earlier, it was this very submarine campaign, culminating in the sinking of the *Lusitania*, that forced the United States, with all her resources, into the war against them.

For another of the lessons of the war is the importance of using submarines as cruisers *within the law*—and by “law” I mean both the law of war and the law of humanity—though as long as submarines exist there will always be the temptation to use them in an illegal way; and there is actually a school of French naval officers the members of which have been at pains to excuse the German submarine campaign, some of them making no secret of their opinion that French war plans should include attacks on commerce by this same inhuman weapon.

It may be said that the British naval authorities advocate the abolition of the submarine because it makes their plan of blockade more difficult, or because England is most vulnerable to this particular form of attack on account of her having the largest mercantile marine; and the French submarine school referred to are fond of pointing out that the submarine is a comparatively cheap weapon and therefore useful for the minor naval powers for purely defensive purposes. They compare our objection to the submarine with the disgust felt by the knights of chivalry when gunpowder was first used in the field and the nobles discovered that some lowborn churl with a cheap musket could bowl

over a mounted cavalier despite his costly armour and long pedigree.

But there is much more in it than this. The submarine, by its very nature, is unsuited for use as a cruiser for attacking commerce. Before the invention of this diabolical weapon, privateers, or men-of-war acting as cruisers, had a recognized duty when intercepting trade. They were entitled to stop, visit and search merchant shipping anywhere at sea beyond the three-mile limit, whatever flag it was sailing under, in order to see that the ships were not carrying contraband. In case of a blockade, which had to be effective, and of which due notice had to be given, all blockade-runners were liable to arrest. But they had to make sure that the ships visited were liable to detention ; and they were not the judges of whether a ship stopped at sea was good prize or not. That matter had to be decided in a Prize Court, and the owners of the ship could be represented by counsel, the whole business being carried out by due form of law. If there was a *prima-facie* case for the capture of a merchant ship—and I am referring here to neutrals, though the same applies to any of the enemy merchant ships as well—a prize crew was put on board or the vessel was escorted into harbour. In any case, the crew of a merchant ship under international law are non-combatants even if the merchant ship is defensively armed, so long as they do not resist capture ; and they are entitled to humane treatment. Even an enemy merchant ship may be carrying neutral passengers or have neutrals among her crew.

The Germans, Russians, and other Continental powers, in the great controversies on this subject before the war, used to maintain the doctrine that cruisers could sink merchant vessels carrying contraband, or for other adequate reason, if, because of the military situation, it was not practicable to send them into harbour for trial ; though this doctrine was in dispute both by ourselves and the Americans—but what was never in dispute was that the passengers and crew had to be placed in safety before the ship was sunk.

Right through the centuries, and in far ruder ages than the present, a rough chivalry of the sea was practised. Even the privateers provided with letters of marque and engaged in cruising

solely for profit, observed certain rules of humanity. Now a submarine has no room on board for prisoners, nor can she spare a prize crew to navigate a capture into harbour. Also she is extremely vulnerable on the surface, and as a rule dare not risk a trap in the shape of a disguised man-of-war masquerading as an ordinary tramp steamer. A submarine, therefore, is altogether unsuitable for use as a cruiser or privateer, and she can only be effective in destroying commerce by literally destroying it—as the Germans did. The Germans and Austrians, in the late war, could not have operated effectively against merchant ships under the old-established and well-recognized rules of maritime warfare; they were obliged either to sink on sight with their torpedoes or else shoot the unfortunate merchant vessel to pieces with their guns, or (as was done in scores of cases) force the unhappy crew to take to their boats perhaps hundreds of miles from land—itsself an operation of great peril—and then sink the captures.

Therefore it was on the grounds of humanity that at the peace conferences, the Washington Naval Conference of 1921 and the London Naval Conference of 1930, at Geneva in 1932, the British Admiralty, supported up to a point by the American Navy Office, proposed the abolition of the submarine, though the only success so far has been that Germany under the Peace Treaty is forbidden to build or own submarines. I shall, in dealing with some future problems in a subsequent chapter, refer to the abolition of the submarine as one step towards limitation of armaments, but it will be convenient here to deal with those objectors who pretend that all such paper conventions are useless, and who suggest that the submarine can be built in secret by an evilly disposed nation. As a matter of fact, these arguments will not hold water. A submarine is such a distinctive type of vessel that the moment she puts to sea every sailor would recognize her and her existence would be reported. I refer now to the supposition that submarines could be built secretly in peace.

Also, the modern submarine is a fairly large vessel, and it would be difficult even to construct her under cover in a shipyard without it becoming known to the world generally.

Supposing this were done, however, and submarines were built in secret, they could not be exercised at sea in secret; and

unless they exercised at sea they would be almost useless, for it takes a long time to train the crew, and especially the officers, of a submarine; and in my description of a submarine in an earlier chapter I explained how very delicate and skilful an operation it is to move a submarine just submerged below the surface and how it only becomes safe and practicable after a lengthy and extensive training.

It would, in fact, be perfectly feasible to abolish the submarine by international agreement, and we should thus avoid the series of terrible disasters in peace which have occurred from time to time despite long experience of this type of vessel; as well as the undoubted cruelties that would be practised should another war break out and submarines be at the disposal of the belligerents.

At the 1930 Conference suggested rules for the polite conduct of submarine warfare were drawn up, but these are almost useless, and it has always been a mystery why the British Admiralty ever agreed to them. They are of French origin, and they allow of a submarine sinking a captured merchant ship, the crew being allowed to take to the boats *if in the judgment of the submarine commander they have a chance of reaching land!* I suppose that a large percentage of the sinkings in the German submarine campaign which so horrified the world and enraged seamen of all nations in the late war could have been accomplished within the margin of these rules!

The lessons here are that the submarine cannot be used against commerce without inhumanity, and that if an unscrupulous belligerent so uses submarines they can be a serious peril to peaceful merchant ships, no matter what flag they sail under.

If submarines continue to exist, the best defence against them is the convoy system; but better than defence is to prevent these under-water pests from getting to sea at all by stopping up their bolt-holes or destroying their nests. The continued existence of submarines means that the naval Powers will be compelled to maintain heavy armaments to counter them, so that if substantial reductions of armaments by agreement are seriously sought, it seems clear that submarines must be abolished by international treaty.

CHAPTER XII

SOME LESSONS OF THE GREAT WAR—THE BATTLE OF JUTLAND

How Jutland came to be fought—Wireless decoding—Directional wireless—German Fleet in a trap—Its escape—Casualties—"Official" histories—Minor blunders—Comparison of strengths—Scheer in jaws of death—His second escape—Over-centralization—Jutland a strategical victory—Material lessons—Moral lessons.

I SHALL devote this chapter to some description of, and comments upon, the battle of Jutland. It was the only occasion on which the opposing battle fleets of the two greatest navies then in the world exchanged shots in action. At intervals during two years the German High Sea Fleet had emerged from its harbours for sorties of short duration into the North Sea. On two of these occasions the German battle-cruisers had advanced right up to the British coast and bombarded various seaside towns. After one of these attacks the British battle-cruisers intercepted them, an action ensued, the German battle-cruisers were considerably damaged, and the *Blücher* was lost. But for an unlucky hit on Admiral Beatty's flagship, and a mistake on the part of the rear-admiral who took over the command, they might all have been destroyed.

On the occasion of the battle of Jutland the Germans had only intended to make one of their normal short cruises ; and, as I shall presently describe, neither commander-in-chief knew that the other battle fleet was at sea, or, if at sea, in his neighbourhood, until action was joined.

The Germans proceeded on no special plan of campaign ; their cruise, like many others, was to keep up the spirit of their men—in other words, for moral effect ; and their presence at sea was first known to the Admiralty by the interception of their wireless signals. Whereupon the Grand Fleet from Scapa Flow

and the battle-cruiser squadron from the Firth of Forth were ordered out to bring them to action if possible.

This had happened on other occasions ; but the fleets had never actually met. One advantage we developed during the war was a most efficient branch of the Intelligence Service, which was able to intercept and decode German wireless messages. A team of university professors and other persons of superior intelligence worked in a suite of rooms in Whitehall, carefully guarded and kept exceptionally secret, which on the War Staff we used to call "Japan". All intercepted wireless messages were sent to this room ; and however often the Germans changed their codes their *telefunken* signals were eventually decoded, and sometimes in a remarkably short space of time. The practice developed into a regular science. Given enough combinations of wireless signals, despite all the codes and ciphers that man's ingenuity had so far developed, sooner or later, by trial and error, by noticing how certain combinations repeated themselves, they could be discovered and the message read. Even wireless signals sent from Germany to their agents in Persia were deciphered before the unfortunate German officer, posing as a harmless merchant, could read them himself. The decoders used to listen with amusement to his frantic requests for repeats, for his own cipher and code were so complicated that he could not always understand what his chief in Berlin was telling him to do.

The elaborate plans for an intervention by Mexico against the United States, sent through the ether from Germany to the enemy agents in the Mexican Republic, were decoded and thoughtfully supplied to the State Departments at Washington. These, incidentally, had not a little to do with the decision of the late President Wilson to bring America into the war.

Furthermore, the position of any German warship sending a signal by wireless at sea could, in a few minutes, be reported to the Grand Fleet, such position having been accurately determined by means of directional wireless.

Imagine two stations, one in the south of England, the other in the north of Scotland, fitted with directional wireless. Each one can tell, within a few degrees, the bearing of a ship at sea making a wireless signal. The intersection of these two lines

of bearing plotted on a chart places the position of the sending ship accurately. We were able to get information as to approaching Zeppelins by this means, for they used to fix their own positions by making a spark, which the German directional wireless stations picked up, and then their exact positions were signalled back to them from the land.

This complicated system of decoding and deciphering and position-finding by wireless was developed to an extraordinary pitch of efficiency, and was far ahead of anything that any other staff engaged in the war managed to evolve. The nation owes a great debt of gratitude to the silent, unobtrusive, hard-working scientists in those secret rooms in Whitehall.

It was thanks to our wireless intelligence that the sailing of the German battle cruisers and their approximate position became known in Whitehall, and it was precisely this news which led directly to the battle. The German admiral's plan was to make a demonstration with his battle-cruisers either towards Sunderland if the weather was clear, or towards the Norwegian coast if it should be misty. By this means he hoped to entice the British battle-cruisers over towards his own main fleet, which was to be kept to the eastward. German submarines were also sent to lie off the British ports on the look-out for suitable targets.

On information of these movements reaching our Operations Division in the manner described, the Grand Fleet was instructed to proceed to sea to meet the enemy. The German staff, on their part, had some inkling of our wireless intelligence service, and therefore, in order to mislead us, they transferred their flagship's call sign to a gunboat lying in the Jade river near the usual mooring position of the commander-in-chief's ship. This small warship sent out wireless signals at intervals to mislead us into thinking the flagship, and therefore the other battleships, were still in harbour. Accordingly the presence of the German ships-of-the-line came as a surprise to both Admirals Beatty and Jellicoe. But so did the presence of the main body of the Grand Fleet come as a surprise to Admiral Scheer.

The battle fought on May 31st, 1916, began with a sharp action between six British battle-cruisers under Admiral Beatty,

and five German battle-cruisers under Admiral von Hipper. Later, the British force was joined by a division of four fast battle-ships, and the German main squadron, coming up, joined in the action at long range. In its turn, the main British Fleet came into action in a favourable tactical position. The two main Fleets then engaged in two short actions, mist and smoke hampering the gunnery-control officers of both Fleets. The German commander-in-chief on each occasion extricated himself by a retreat covered by his torpedo flotillas, and finally escaped under cover of darkness.

The above is a bald and brief account of the only battleship action between the two main Fleets of ships-of-the-line during the whole war.

Several attacks were delivered by the British destroyers on the German heavy ships during the night, with some success, but the main German Fleet managed to make its way back to port.

The material losses were

					British	German
Battleships	..	..	..	..	0	1
Battle-cruisers	..	..	..	..	3	1
Cruisers	..	..	..	..	3	4
Destroyers	..	..	..	..	8	5

The losses in personnel were :

Killed	..	..	..	6097	2551
Wounded	..	..	..	510	507

Controversy has raged round this action ever since, and is likely to continue to rage for some years yet ; but I am only concerned here to try to draw the lessons from this episode of the naval war.

There have been a number of official histories of the naval war generally, and of the battle of Jutland, its culminating episode, in particular. The German official history, the American official history, and the British Admiralty's official account have all been published. But these official accounts, written so soon

after the event, by men actually or spiritually under the influence and control of the principal actors in the great drama, are what one would expect them to be. They are interesting and valuable, but they are "official", and official in the sense of interpreting events as the official mind in control at the time desired them to be interpreted.

A very valuable staff appreciation has been prepared by War Staff officers for the use of senior naval officers in the higher studies of their profession ; but this is a highly confidential document, and it is quite proper that it should not be given to the world, at any rate for the present. For example, many of the statements about British naval material must for many years rank as official secrets.

A selected committee of six naval officers under Admiral Harper was appointed by the Admiralty to make a very thorough study of the battle of Jutland and to report with a view to publication. The Harper Report, as it is now known, is the fullest and most complete record of actual events yet made, and it is the outcome of immense labour, of the study of some three hundred ships' logs and many volumes of signals, wireless messages, etc., but it is a bald chronological narrative, accompanied by intricate charts and plans, and only an expert with a great deal of time at his disposal can draw the true lessons from the Harper Report.

I propose to examine the broad conclusions which have already been reached in unbiased and informed naval circles in this and other countries. After years of debate and study, naval officers, apart from any natural loyalty, perhaps exaggerated into partisanship, have had forced upon their minds certain home truths, and it would be for the good of the whole nation if these truths could be generally appreciated.

For this purpose, all the preliminary skirmishing between the German battle-cruiser squadron under Admiral Hipper and the British battle-cruiser squadron under Admiral Beatty may be ignored. Both sides did their duty, and the action was only a prelude. Likewise little need be said about the strategical dispositions. The Germans brought their whole force into the field of action. The British Admiralty had detached the third

battle squadron to the Nore and actually recalled Commodore Tyrwhitt's very valuable force of light cruisers and destroyers to Harwich while at sea on its way to join the Grand Fleet. These were strategical blunders due to the nervousness of the War Cabinet and the shortsightedness of the War Office on the question of a feared, but actually impossible, military invasion of our shores. Again, as already described, a division of very fine modern French superdreadnoughts were kept cooling their heels in the Mediterranean where there was no one for them to fight, and their offered services were declined for quite inadequate reasons. They should have been with their British comrades.

These were minor strategic mistakes, but they would not have affected the main issue had the tactical handling of the British Fleet been different. What does matter is that about 6.20 p.m. on May 31st, 1916, and again at about 7.15 p.m. on the same evening, the vastly inferior German battleship fleet found itself, by the dictates of Providence, in an extremely weak tactical position to the vastly superior British Fleet, and actually under brief, but damaging, heavy gunfire.

Why were the Germans not destroyed?

Let me first deal with the material aspect. The main British fighting force consisted of twenty-eight battleships and nine battle-cruisers with a minimum speed of twenty knots. They mounted the following guns: forty-eight 15-inch guns, ten 14-inch guns, one hundred and forty-two 13.5-inch guns, one hundred and forty-four 12-inch guns, firing a total broadside of 396,700 pounds. The German Fleet consisted of sixteen battleships and five battle-cruisers, but, owing to the inclusion of a squadron of older battleships of the *Deutschland* type, the speed of the Fleet was only sixteen knots with a total broadside weighing 189,958 pounds. The German guns mounted were one hundred and forty-four 12-inch guns and a hundred 11-inch guns.

At about 6.20 the German armada in single line ahead, steering roughly north-north-east, found itself with the whole British Fleet deployed ahead of it, and with three of the British battle-cruisers actually deploying on its starboard bow, or to the north-east. The main British Fleet was on the port bow, or to the

north-west, and the head of the German Fleet, consisting of five battle-cruisers, which had already had a good hammering, was caught, as it were, between the two blades of a pair of scissors. Admiral von Scheer was in a trap.

About an hour later, having been allowed to escape from this terrible predicament in a way I shall presently describe, Admiral von Scheer found himself again in single line ahead, this time heading to the eastward for Germany, with the whole British Fleet once more across his van and with atmospheric conditions such that only the flashes of the British guns could be seen, though his own vessels were plainly visible to his opponents and offered an excellent target. The manœuvre well known as "crossing the t", previously considered decisive in modern naval tactics, had been successfully accomplished by the British by what were for us a happy concatenation of circumstances. If this situation had been described to any naval staff officers before it actually occurred, they would, without hesitation, have said that on each of the two occasions the German Fleet must have been annihilated.

What happened—and why?

On each occasion, von Scheer, having blundered right into the jaws of death, did the only thing he could have done. He turned his fleet, sixteen points each ship, right about together, through an angle of 180, launched a torpedo attack with his light torpedo craft and hoped for the best. On each occasion Admiral Jellicoe answered the manœuvre by turning away from the torpedo craft and rapidly losing touch with the German Fleet. I said that the preliminary skirmish between battle-cruisers and other cruisers could be ignored. To give point to all this, let me draw attention to the fact that only one British battleship, the *Colossus*, in the whole of this magnificent battle force was struck by an enemy shell, and that not in a vital place. Why was this heaven-sent opportunity of annihilating the German Fleet and shortening the war by at least eighteen months, and, incidentally, preventing the collapse of Russia, thrown away?

The answer can be given in one word—over-centralization.

Jellicoe was a talented, industrious and gallant officer; but he was the victim of a faulty system. The whole of the naval

training before the war, though excellent where the individual efficiency of ships and of their crews was concerned, was unfavourable to the development of initiative or the training and exploitation of individual talent and leadership. The great British Fleet was controlled by two men, Admiral Beatty in the battle-cruisers, Admiral Jellicoe with the battle fleet. Twenty-eight battleships in line, each a quarter of a mile apart, was too spread-out a force to be controlled by one man. Yet if they were to be controlled by one man, they had to fight in single line. Fighting in single line, they were in the worst possible position to avoid the "runs" of hostile torpedoes. Because they were in single line they were inflexible, signals took a long time to pass and to be acted upon, and they could not turn or alter direction rapidly. The only large manœuvre open to a single line was von Scheer's movement of retreat, whereby he turned all his ships simultaneously completely round, but this manœuvre was impossible for any other purpose. Because the British Fleet was in one single line it could not take advantage of the German discomfiture, but because it had to be controlled by one brain, it had to be in a single line. The vicious circle was complete; and all of it was inevitable under the system of training in the higher ranks which the Navy had followed for half a century.

Jellicoe's own battle orders laid down the rigid line, the turn away in case of torpedo attack, and the centralized command. They were approved by the Board of Admiralty, including Mr. Churchill, before the war, when it was decided that Jellicoe in the event of war should be appointed commander-in-chief; and during the war, when Jellicoe was actually in command, the same plan was approved. The plan had been criticized before the war by many officers, but under the same bad system of over-centralization, with its corollary of an attempt to discipline the human mind, the objections were swept away. And under this bad system, once war had broken out, the most constructive criticisms and suggestions were inadmissible and almost a breach of discipline.

The organization of a Fleet of the size of Jellicoe's command should have been under its divisional admirals. The battle

fleet of twenty-eight battleships was actually divided into seven divisions of four battleships, each under a flag officer, but such division was only theoretical, since these flag officers were prohibited from acting as admirals and their flagships served only as relaying stations for signals.

If the organization had been flexible, the subordinate admirals could have been authorized in just such circumstances to get on with the fighting, including the obvious dodging of torpedo attacks. In that case the German Fleet would have been utterly destroyed. But this required an entirely different system of tactical training over many years, and, above all, a different education in the art of war. The whole system of naval training for the higher ranks, and the tactical use of the Fleet, must be altered if future admirals, as talented and as devoted as Jellicoe, are not to suffer as he did, through no direct fault of his own, but simply as the result of a bad system.

The battle of Jutland was, nevertheless, a victory for British strategy. The High Sea Fleet returned to its harbours, much damaged, and made no further challenge to our sea power. The blockade continued, gradually sapping the vitality of the peoples of the Central Powers and hampering their arms. The submarine campaign, the answer to our blockade, embarrassed the Allies but did not materially weaken their ability gradually to wear down the German and Austrian armies. And it helped to bring the United States of America into the war, with fresh enthusiasms and unfatigued troops.

A partial defeat of the British Grand Fleet would not have meant, necessarily, victory for the Central Powers. For we had plenty of reserve strength at sea and could have continued the struggle. The Grand Fleet, in overwhelming strength, could not, because of the torpedo, the mine, and land artillery, exercise a close blockade of the German ports or land troops on the German coasts. Neither could the High Sea Fleet have accomplished these things if a sea battle had placed it in a position of tactical superiority to the British Navy. The war would have gone on and the victory would still have lain with the Allies. Only a complete defeat and annihilation of the Grand Fleet would have enabled our communications with France to be cut. And this

destruction of our forces was scarcely possible in view of the relative strength of the two Fleets.

On the other hand, a crushing defeat of the German High Sea Fleet would have had tremendous effects on the morale of the peoples of the Central Powers. They would have realized that ultimate victory was now for them impossible. The war would have been shortened and much subsequent suffering, through economic exhaustion and inflamed passions, avoided. And a crushing defeat of the weaker German Fleet was possible and might have been brought about.

But I believe the lessons of this battle have been learnt by the Royal Navy. It is only in war that experiences of war can be gained, and as the younger generation of naval officers grows up these lessons will be applied. They are material and moral. The first are easier to deal with.

For example, the defective protection to the magazines which led to the loss of the two battle-cruisers in Lord Beatty's squadron was remedied after the battle. Our shells were not so effective as the German projectiles; nor were our searchlights as good. These things are easy to put right by better technical staff work.

The moral lesson is an old one, but it needs to be relearnt. It is that battles are only won by fighting. If we are afraid of our eggs we must not put them into few baskets. In other words, if admirals are afraid of losing ships because they are too few, large and costly, give them smaller ships and more of them. If a tactical system is too rigid for initiative on the part of the individual commanders and junior flag-officers, make it more elastic. Above all, let us realize that battles are won by men and not merely by machines. And that, even to-day, the morale is to the material as ten to one in importance in war.

In the future the Royal Navy may not be able to rely, as in the recent past, on material superiority. But this only makes the quality of leadership the more important—and leadership is a necessity for Democracy as well as for our great Sea Service.

CHAPTER XIII

SOME FUTURE PROBLEMS

Disarmament—Britain and U.S.A. not military powers—Air armaments—Economy with security—Superdreadnoughts and submarines—Freedom of the seas—Pooled security for the trade routes—Blockade weapon—Air menace to trade routes—Case for and against large battleships—What determines the size of a warship—Large submarine building—Ministry of Defence—Oil versus coal.

I PROPOSE in this final chapter to refer to some of the problems which the Royal Navy will have to face in the future. They affect the citizens and taxpayers of the Empire also, and very profoundly. They are problems of defence and national security in a troubled world at a time when financial stringency demands that every shilling spent by Governments should be looked at twice and saved if possible.

Certain strategical problems of the British Empire, both the old and the new problems, I have dealt with in earlier pages.

Before this book leaves the hands of the printers the World Disarmament Conference of 1932 will have met at Geneva. And at the time of writing the prospects are gloomy. Neither Britain nor the United States of America, the two most powerful nations in the world, are military powers in the generally accepted sense, and their armies are really only police forces. The only exception, perhaps, is a portion of the British Army in India which can be used for purposes of Imperial defence.

With regard to armaments in the air, Britain is only the fourth or fifth power in order of strength; and it is obvious that here some of our neighbours must reduce their air forces down to our level, if international reduction of armaments by agreement is not to be a farce.

Therefore the navies of Britain and America, still the two most powerful in the world, are sure to be the target for reduction proposals. And successive British Governments have made it clear that reduction must be international, and that if British, and presumably American, naval strength is to be reduced other nations must mutually agree to reduce their navies relatively, and also to cut down their military and air forces.

How can economies be effected in naval armaments in such a way as to satisfy public opinion in the British Empire?

Security is considered to be a matter of relative strength in the present state of world opinion. Certain police forces for peace duties are required for the safeguarding of British interests, quite apart from any war dangers; and, in addition, in the present state of the world some reinsurance for the defence of the trade routes will be required.

On these questions of relative strength there is a good deal of confusion, not only in the public mind but in professional naval circles as well, on both sides of the Atlantic. If no single nation has large superdreadnought battleships, nobody else will require them; and none of us will be any weaker if they are altogether abolished by general agreement.

Exactly the same argument applies to the submarine, and indeed the proposals for the abolition of these two types of weapons, the one extremely expensive both to build and to maintain, and the other by its very nature an instrument of inhumanity and illegality, as has already been shown in these pages, should be linked together. The naval vessels then required would be ships of the present cruiser type, whose tonnage could be still further limited quite easily by international agreement, as could the calibre of their guns.

Destroyers, large and small, would then be the only other types of war vessels required, apart from the sloops, gunboats, and surveying ships needed for special peace duties. This would immensely simplify the whole naval problem of defence, tactical and strategical, lead to great monetary savings, and yet not leave the British Empire any weaker relatively. Indeed—and this may as well be confessed at once, for other nations are never tired of using the argument in any case—it would actually leave us

stronger, because of our reserves both of seamen and material in the mercantile marine and our plenitude of overseas bases. If there should be complaints on this score the answer is perfectly simple; for it so happens that we have the largest mercantile marine in the world to defend; we are the most dependent of any nation, with the possible exception of Japan, whose strategical position is different, on overseas supplies; and we have more bases because we have more overseas possessions, and these, in turn, need defence.

Except for a few manufacturers of ordnance and armour-plate, and certain professional writers who exploit the fears of the public, we most of us desire to see sufficient armaments for our defence provided as cheaply as possible.

While not ignoring the existence of the Covenant of the League of Nations, or other international instruments, I do not propose to argue their efficacy, for such arguments would be out of place in these pages. But the fact remains that Russia, the country with the greatest potential military power, and the United States, the country with the greatest wealth and the second navy, presently to achieve parity with our own, are still outside the League.

I believe that no real progress will be made with disarmament, whether on sea, land, or air, until the old problem of the freedom of the seas is settled.

If we, the citizens of the British Empire, have to depend upon our own naval strength alone for the defence of our sea-borne commerce, we must be able to exercise our ancient right of blockade against a possible belligerent, for the best means of defence is usually attack, and if we are threatened we must be able to retaliate. I am here presuming that the Covenant of the League of Nations has not prevented a war or a threat of war, and that our sea-borne commerce, and therefore our very existence, is in peril.

On the other hand, if the American demand for the freedom of the seas is accepted as international law, that is, that merchant shipping shall be free from interference outside the three-mile limit unless in the event of an international blockade for the

enforcement of international covenants, then America, with the naval strength that she claims at all international conferences on armaments, must be prepared to play her part in upholding the freedom of the seas. And the Continental Powers who support the American doctrine, notably France and Italy, must also be prepared to play their part.

For these other Maritime Powers cannot have it both ways. If we are to give up our ancient right of visit, search and capture at sea, and the interception of enemy commerce, they in their turn must assist us in seeing that nobody else attacks commerce on the trade routes, including our own commerce. And agreement on this policy and this change in international law would, I believe, be to the advantage of the British Empire. America could so agree without joining the League of Nations, which her domestic politics at present preclude any party in the United States from advocating.

If the freedom of the seas is not only accepted as international law, but all the signatories to the new code of international law agree to uphold it, then there can be very substantial reductions in naval armaments. And with these reductions must, of course, follow reductions in military and air armaments, especially those maintained by certain Continental Powers.

The more this problem is studied with full knowledge and understanding of the facts, the more clearly it stands out that only by such methods can serious reductions be made in the terribly expensive burden of armaments now borne by all nations, with the exception of those compulsorily disarmed under the Peace Treaties, and that the alternative is a new race in war preparations, probably ending in another world war, with all that that will mean.

In this connection I must refer to a very serious problem that is exercising the naval staffs of all the principal Maritime Powers—the defence of merchant shipping against aeroplane attack. Since the Great War ended immense strides have been made in the development of aeroplanes and seaplanes. Certain Powers have always managed to burke serious discussion of means of regulating the use of this new weapon in any future war. As things are at present it will be a terrible menace to merchant

shipping, and this is an undoubted fact. For example, the Mediterranean trade route could be made unusable for merchant ships by aeroplanes flying from land aerodromes in the south of France, or Italy, and North Africa. So could the western approaches to the English Channel.

The acceptance of the doctrine of the freedom of the seas is more necessary with the development of the air weapon than it was even with the invention of the submarine, if terrible cruelties are not to be perpetrated on peaceable merchant ships and their crews and passengers. And it must be remembered that whenever we have been a neutral in former war days, we have been put to great inconvenience and loss by commerce war on the high seas indulged in by the belligerents.

But now to turn to the actual proposals that have been made at former conferences on armaments, and which will be made at future conferences. The case for the large battleship has been assailed with increasing vehemence, not only by economists and statesmen, but by naval experts in all countries. The only Government that is still under the dominance of its orthodox naval advisers is the United States of America. Japan, for financial reasons, is prepared to agree to the abolition of the superdreadnoughts. France has for long been in favour of smaller warships, and the Italian Government is committed to this same policy. The British Admiralty is half-hearted, and their proposal put forward at the 1930 Naval Conference of the Five Powers, and prepared again for the World Disarmament Conference of 1932, of reducing the present limit of size of 35,000 tons to 25,000 tons means making the worst of both worlds. For the 25,000-tons battleship has all the disadvantages of the 35,000-tons battleship, and none of the advantages of the smaller and cheaper vessels.

The 35,000-tons battleship costs round about £7,000,000 to build, half a million pounds a year in upkeep; and because so many eggs are in one basket a squadron of these mastodons of the seas requires a large flotilla of destroyers to screen it from submarine attack, minesweepers to clear passages for it, and cruisers and aircraft to scout.

How, and why, in any conceivable war, fleets of superdreadnoughts will ever expect to meet in combat has never been

explained, and is, in fact, inexplicable. If the belligerents are near each other geographically, their superdreadnoughts will hardly venture into the narrow seas between them because of the danger from torpedo craft and, above all, aircraft; while if they are geographically distant the chances of a combat at sea between them are even more remote. For in war belligerents do not seek each other out like gladiators in an arena to fight to the death, unless their respective commanders-in-chief and naval staffs have taken leave of their senses.

The arguments for the great superdreadnoughts are as follows:

(1) They are relatively cheaper, ton for ton, than the smaller vessels.

(2).^{*} A considerably higher speed can be got out of the large ship per horse-power than from the small ship.

(3) Only on the very large displacement can the necessary under-water protection against bombs and torpedoes, and above-water protection against shellfire, be provided.

The American argument runs something like this: "We might be forced into a war with Japan and have to defend the Philippines. We have no large docks there, and are forbidden by international treaty to construct them. Only a superdreadnought can expect to engage in a fleet action and still be fit to remain at sea afterwards, without coming into harbour for repairs."

There is a fourth American argument, but it is not openly advanced. It is that only certain nations are rich enough to afford superdreadnoughts and all their paraphernalia and the flotilla to defend them, and therefore the very rich Powers gain an advantage by being allowed to construct large warships.

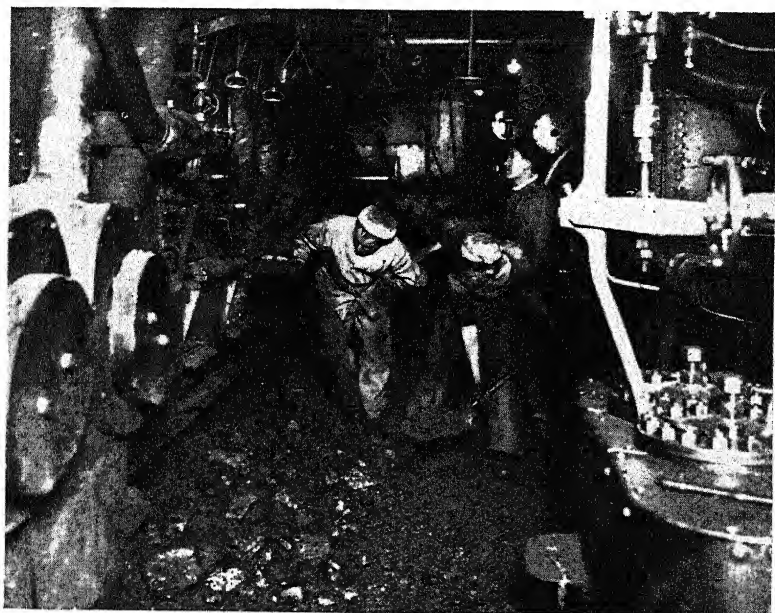
This latter argument, besides not being very respectable,

^{*} The following table shows the horse-power per ton required to give a speed of 31 knots to three ships of different size:

	<i>Displacement</i>	<i>H.P. per ton</i>
<i>Hood</i>	41,200 tons	3.5
<i>Cornwall</i>	13,600 tons	5.3
Modern Destroyer ..	1,480 tons	18.2



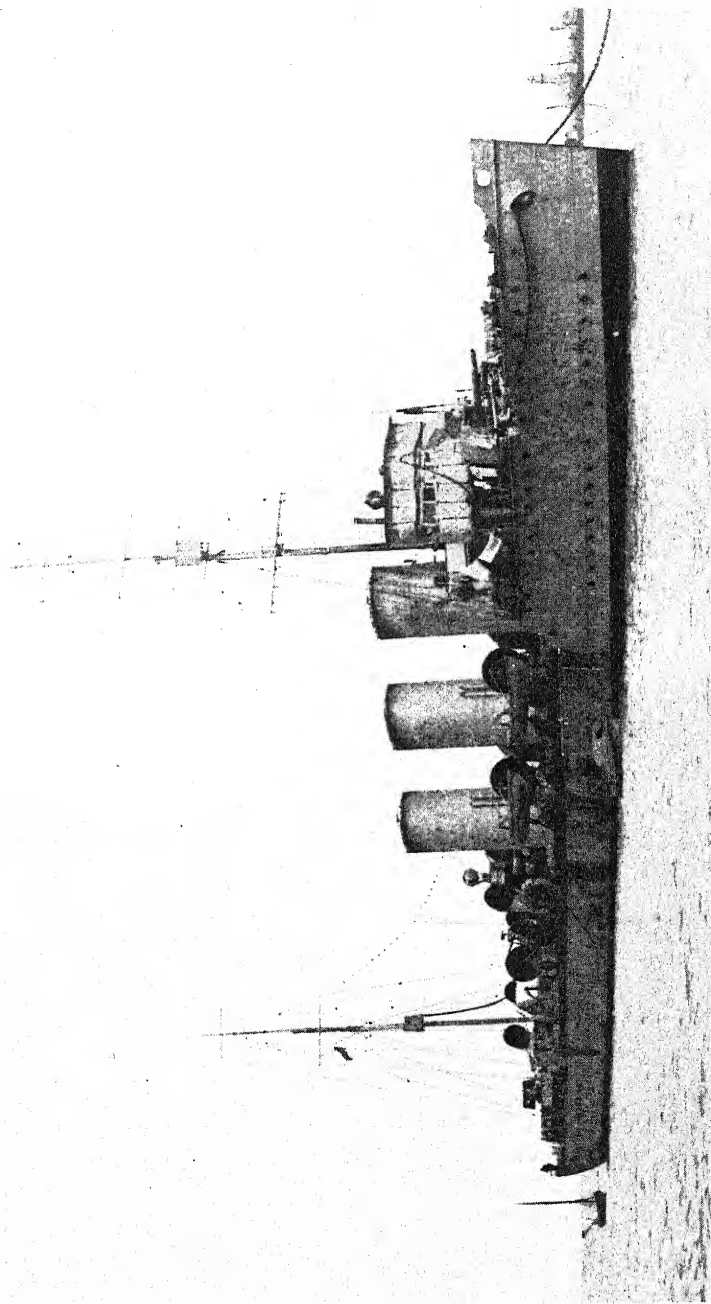
[Imperial War Museum]



[Imperial War Museum]

Above : BATTLE CRUISER COALING

Below : STOKING A COAL-BURNING FURNACE



Imperial War Museum

H.M.S. "SWIFT", FLOTILLA LEADER, LAUNCHED 1902. SPEED : 38 KNOTS, COAL BURNING,
STILL HOLDS SPEED RECORD FOR SHIPS OVER 1,000 TONS. NOW SCRAPPED

is one that can be used against any limitations of armaments by agreement; and it is curious that American public men are loudest in their demands on Europe to stop spending money on war preparations.

The answer to the first of the three reasons for maintaining the big battleship is that, though on paper it may be cheaper to build one superdreadnought than three or four cruisers, better value can be obtained for the cruisers, and probably even better value for the same money spent on up-to-date flying-boats and war aeroplanes. In addition, the expenditure on the superdreadnought is swollen by the need of very large docks to accommodate her, and by the numerous flotilla and cruisers required to defend her from attack from small vessels.

As for the argument about the defence of the Philippines, it is absurd to suppose that an American Fleet, having emerged victorious from a pitched battle at sea, would not require extensive repairs before it could continue operations. Thus, "bulging" will prevent one or two torpedoes sinking a superdreadnought, but, though the explosions of these torpedoes may not penetrate the vitals or sink the ship, they will so reduce her speed that she will be practically forced to dock.

Again, though her stout armour can prevent the heavy guns and vitals being affected by shellfire, the anti-aircraft weapons, the anti-torpedo-boat secondary armament, and, above all, the fire-control apparatus is bound to have been seriously injured, thus very greatly reducing efficiency.

Perhaps it would be as well to notice in passing another reason for the large and costly superdreadnought foisted on members of the late Labour Government by the Sea Lords, though it is so farcical that only very ignorant or very overworked men could have accepted it. The argument is that the very large ships are more comfortable for their crews! This may be perfectly true as regards a handful of senior officers, but as regards the ships' companies generally, the argument is absurd.

It is a fact, which will be borne out by naval officers and ratings in all navies, that, broadly speaking, the smaller the ships the happier are their crews and the more efficient they are for the practical purposes for which they exist. A reference to my chapter on

naval discipline will show that it was on board the large ships that the trouble in our own and other navies has been almost invariably begun, and that in most cases it did not spread to the smaller ships at all. The small ships may be "piratical", in naval parlance, but they are efficient in the things that matter.

It is also a fact that in the Great War, which is the only recent experience we have had, the smaller the ships the more actual fighting they did, and the more bold the strategy of their employment. The few very costly units seemed to impose a timid strategy on the nation possessing them.

In actual practice, the smaller the ship the more immune she seems to be from torpedo and mine. And the same will certainly apply in future to aeroplane attack. Now the 25,000-ton superdreadnought, the compromise vessel suggested by the British Admiralty, will still cost £5,000,000 to £6,000,000, will still require the vast docking organization, and will still look to the service of a large flotilla for its protection when it goes to sea with its consorts.

And the same objections apply to the Admiralty proposal to limit the size of gun from 16 inches to 13.5 inches. Only a superdreadnought can carry the latter-size gun, unless we are going back to the monitor, of very limited use; and all the objections, strategical and financial, apply to the superdreadnought with 13.5-inch guns as to the superdreadnought with 16-inch guns.

Now what should determine the size of a warship? For if we can agree on a reasonable maximum, and all nations can be induced to abolish anything bigger, really great savings will be accomplished and nobody will be any the less secure. What is it that really determines the size of a warship? Decisive battles can be fought with ships of comparatively small size. Size and bulk are not essential factors here; while if the size I am discussing is the maximum allowed no nation is weaker or stronger through the limitation.

The minimum size of a warship is determined by the tonnage necessary to produce a fighting machine stronger than any armed merchant vessel. Our cruisers of the future must be of such power that no armed liner can expect to overpower them, and so

upset the delicate balance of naval strength agreed upon by international treaty; and for this purpose probably 7,000 tons is sufficient—but let us say 8,000 tons, which will certainly be ample—and here I am glad to say the British Admiralty are showing sound sense in proposing this tonnage as the maximum future limit of cruisers. The 10,000-ton limit agreed upon at Washington in 1921, which immediately became the minimum for a number of years, is too large for a cruiser, and the resultant “Washington”-type warships of cruiser design are neither fish, flesh, fowl, nor good red herring. Their armour is not thick enough to enable them to lie in the line against the still larger ships of so many Powers; they are over-gunned, bad sea-boats, and failures generally. Here much of the blame is due to the limit of cruiser gun agreed to at Washington, namely 8-inches calibre, and here once more the Admiralty proposal for a 6-inch gun instead is far more practicable.

There is an immense difference between a 6-inch gun firing a 100-pound shell and an 8-inch gun firing a 250-pound shell. For the 6-inch gun can be handled and loaded by man power, whereas 8-inch guns require either an electrical or hydraulic machine; this again needs special protection, and the whole mounting is proportionately heavier.

→ Now why is it that an 8,000-ton cruiser, armed with 6-inch guns, is more than a match for a huge ocean liner of, say, 30,000 tons, which can actually mount more 6-inch guns than a cruiser? The answer is that the liner offers a far greater target, she is more vulnerable to gunfire, her engines being particularly exposed, and it is impossible to protect her without sacrificing all her amenities as a floating hotel; but, above all, she cannot have the complicated system of director firing which I have already described in these pages. And without director firing and modern gunnery-control apparatus generally, the liner would be hopelessly out-matched in a duel and would stand no chance against a well-found modern cruiser. And it would be impossible to carry these elaborate fittings in a passenger liner or to improvise them after hostilities had commenced.

Now with 8,000 tonnage, ample speed, protection, and radius of action can be provided. By sacrificing speed, if a different

type of vessel is required, more armour protection can be provided, and *vice versa*.

I would suggest that 8,000 tons and 6 inches for the guns be taken as a limit for all future war vessels, and that thereafter a free hand should be allowed in the use to be made of the limited tonnage.

The undoubted advent of the Diesel engine for general naval purposes makes this tonnage quite big enough for all possible naval purposes in the future. For a moderate expenditure, the British Empire could provide sufficient cruisers of this size for reasonable defence, especially if the pooled security of the trade routes was agreed upon as already discussed.

With the abolition of the superdreadnought battleship the abolition of the submarine would become practical politics. And with the abolition of the submarine the necessity for maintaining a very large flotilla of small surface vessels to counteract it would disappear.

If this is not done there will be an almost irresistible demand from Germany for an amendment of those clauses of the Versailles Treaty of Peace which prohibit her from building or owning submarines. Since this Peace Treaty was ratified the construction of submarines has been speeded up to a ridiculous and dangerous degree. Thus the minor naval Powers, who were not represented at the London Naval Conference of 1930, have between them no less than 148 submarines, and amongst these are Germany's neighbours, the Scandinavian States, Poland, Finland, and Latvia. Russia has quite a formidable flotilla of 15 submarines in commission.

As for the major naval Powers, the submarines built and building are very numerous, and this specially applies to our neighbour, France. At the time of writing these words France has 54 submarines built and proposes to build no less than 56, while Italy is building 30 to add to her present fleet of 40.

For purposes of comparison the existing submarine fleets of the other three principal naval Powers are :

British Empire	..	..	..	59 and 7 building
United States of America	..	..	..	107 and 3 building
Japan	..	..	..	67 and 4 building

France at the moment has more submarines on her Navy List than Germany had at any period during the Great War. How can we, under these circumstances, resist the German demand for permission to build a type of warship which, it is claimed, is cheap and democratic and of great value for coast defence?

Another problem which those responsible for the Royal Navy will have to face in the future is that of limitation of armaments generally by budgetary means, that is to say, by limiting the total expenditure allowed. Indeed, we are having this forced upon us quite apart from any international agreements by the general financial state of the country. Any means, therefore, for saving money without reducing efficiency, is of greater importance than ever before. In this connection I believe the British Government has much to gain by re-examining the proposal for a combined Ministry of Defence. There is undoubtedly a great deal of duplication and overlapping at the present time, and, what is even more dangerous, lack of co-ordination and liaison between the three services. There is a growing belief, indeed, that the advent of the air arm has made a Ministry of Defence inevitable.

The problem was last cursorily examined by the May Committee on National Economy in 1931. These accountants, bankers, and trade-union leaders called before them the professional chiefs of the three fighting services and asked them, in effect, if they would like to abandon their own separate dunghoops, on which they crow in splendid isolation, for one ministry controlling the three fighting services. It is not surprising that strong arguments were advanced against any such restrictions on their independence, and the May Committee accepted these!

But it is a fact that very many millions of pounds every year could be saved without any loss of efficiency by combining the Air Ministry, Admiralty and War Office in one Ministry of Defence. In any case a combined staff is urgently required for strategical, quite apart from financial, reasons.

I must refer to another problem of great importance, and that is whether the Royal Navy should revert to coal as its fuel and abandon oil. The arguments for coal are that, by reverting to this fuel, the Navy would help a very important basic industry, and that it would be sure of its supplies, which, as things are at

present, it cannot be with oil that has to be brought from the Gulf of Mexico, Persia or other distant fields of natural petroleum. Coal has another advantage in that the bunkers placed for the purpose along the sides of warships form an excellent protection against shellfire. And, finally, from the point of view of the balance of trade and our economic position, it is a fact that only two per cent. of the oil-supplies of the world are to be found in the British Empire.

But oil has certain advantages which I fear outweigh any supposed advantages of returning to coal. For the same weight of fuel, a twenty-five or thirty per cent. greater distance can be steamed, and a smaller number of men are required to feed the furnaces with oil instead of with coal. This reason alone is so important in designing warships, especially if the tonnage is to be limited by international agreement, as to be almost decisive. But the operation of shipping the coal is so arduous and lengthy in a very large ship that it practically immobilizes her for forty-eight hours and physically exhausts the whole of her complement. Oil, on the other hand, can be pumped in from hoses with the minimum of labour and mess. Ships can also be oiled at sea, while coaling at sea is dependent on very fine weather, and is a hazardous operation at the best of times.

The future use of Diesel engines, which I believe is bound to come, and which will be universal in a few years, will still further increase the advantages of oil over coal for the distances steamed in comparison with the weight carried.

As for the undoubted inconvenience of having to bring our oil from overseas and the objection to buying it from foreigners while our own coal-miners are unemployed, this could be overcome if some British Government would have sufficient backbone to tackle the problem of producing oil from our own coal supplies. Technically, there is now no difficulty whatsoever in doing this. And the production of oil from our own incomparable coal would not only add to the strategical security of our Fleet, but would remove a great threat in any future war to the country as a whole. We are so dependent now on oil, not only for motor transport, but for our merchant ships, and, perhaps, later, for the new Diesel electric oil-engines on the railways, that even if the

Admiralty's oil supplies were secured the national life would be crippled by the cutting off of our mercantile supplies of petroleum.

As I stated at the beginning of this chapter, the above problems, though almost purely naval, affect every citizen of the Empire. Every adult now has a responsibility as a voter, and only good will come from impartial examination and study of them.

The British people, for sound reasons, have a deep affection for the Royal Navy, and a trust in it that I do not believe is misplaced, or will ever be betrayed.

THE END

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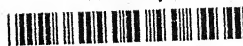
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